

HP Professional

DECEMBER 1997

HP-UX

Windows NT

MPE/iX

A BCI PUBLICATION

INTERNETWORK SECURITY

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It's a question any good CIO and IT manager are asking themselves. From friends and foes alike, the possible threat of network damage is everywhere you look. Apparently, it pays to be paranoid. And no one knows that better than vendors selling security solutions.

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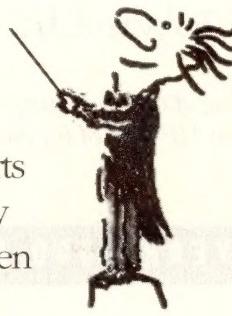
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EDITOR-IN-CHIEF George A. Thompson

thompsonsga@boucher1.com

COPY EDITOR Karine Simpson

COLUMNISTS

UNIX Fred Mallett

WINDOWS NT Ryan Maley

CONTRIBUTING AUTHORS David Baum, Lane Cooper, James Dukart, John Harney, Frank Teti

EXECUTIVE DESIGN DIRECTOR Leslie A. Caruso

ASSOCIATE ART DIRECTOR Jennifer Barlow

PRODUCTION MANAGER Carla Loughlin

CIRCULATION DIRECTOR Dianna Schell

MARKETING MANAGER Angela Campo

SENIOR GRAPHIC DESIGNER Christine Piatkowski

PUBLISHER Leslie Ringe

ringeles@boucher1.com

BOUCHER COMMUNICATIONS, INC.

PRESIDENT AND CHIEF EXECUTIVE OFFICER
Robert N. Boucher

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EXECUTIVE VICE PRESIDENT

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Andrew D. Landis

DIRECTOR, HUMAN RESOURCES

Mary G. Steigerwalt

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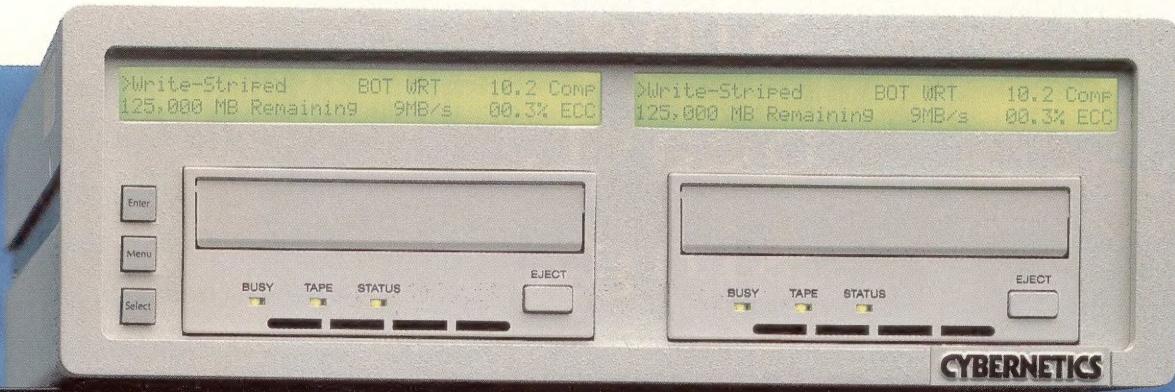
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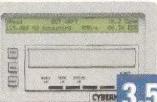
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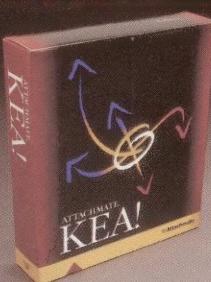
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Oh, I See Said The Blind Man

Every large organization, like yours no doubt, has any number of servers, applications and databases. And behind all that is a beaming CIO, proud of the fact that they are all hooked together on a network, sharing information in a unified IT structure. So far, so good. But wait.

Router and hub people manage their gear using HP OpenView Network Node Manager (NNM). It doesn't matter that the system administrators use HP IT/Operations to watch the HP servers. In turn, the sys admins who think NT is a poor excuse for an operating system, so they keep their distance from the PC support crew, which manages NT systems with Symantec products. The database administrators are in a different world: they are using BMC Patrol to monitor the databases. And the applications people use HP's MeasureWare to look at the status of their apps. And no one has a clue as to what goes on in the SNA side of the house.

It's like the eight blind men and the elephant joke: No one group can describe what the entire beast looks like. Likewise, if you can't see the entire IT infrastructure, how do you know if it's healthy? In other words, if there's nothing in your chosen vendor's suite of products that provides the big picture, how can you manage your IT services.

Last spring, HP announced a service management initiative. Much of it revolves around HP's acquisition of Prolin, a Dutch developer of a high-end trouble-ticketing system. Now it's arguable that Prolin could be the glue that will bind HP's service management strategy together. And certainly, when compared to products in its class, Prolin ranks as one of the most comprehensive problem and change management solutions on the market today. But we're talking about the whole elephant here. In HP's service management architecture, information is fed into the Prolin system by the various separate components in HP's OpenView suite — NNM, IT/O, MeasureWare, and Symantec — as well as third-party applications like BMC Patrol. It's like each blind man snapping a Polaroid of the elephant from a different angle and giving them to Prolin. Then asking Prolin to make an intelligent judgment as to the source of the problem.

But true service management requires the ability to view the entire elephant: all the components of the entire network—on a single screen. Say an organization sells most of its merchandise through catalogs. It's 3 p.m. on a Friday and a customer calls in an order, but all operators are busy. He or she waits five minutes ... *click*. You're saying, not enough operators. Nope. It's more than that.

Telephone operators depend upon customer profiles fed into the order entry system. The order entry system was slow. But why? The router specialist says that the routers are up and running. The mainframe operator says that CPU and memory usage is well within spec. The NT group says that no PCs are bottlenecked. The database admins are claiming everything's fine with the customer profile database. Why was the service not available? Because no one was looking at the entire elephant, er, entire order-entry service, which by definition, depends on multiple components functioning together as a unit. That's why a central data repository of information that monitors every event throughout the enterprise that may affect customer services is the solution.

The lack of such a database is the number one issue with the HP OpenView suite today: No central, open, data repository ties its various components together. Data about the IT infrastructure and about the services it supports, is stored in different formats in different databases throughout the HP OpenView and various third-party suites. Until the data repository problem is solved, it will be impossible for HP users to see the entire IT elephant. And without it, HP will fail to deliver on the promise of service management. And that's a white elephant.



Jill Huntington-Lee

jill@micromuse.com

Vice President

Micromuse, Inc.

HP NEWS & VIEWS

HP VIRTUALVAULT AND LOTUS DOMINO WEB SERVER

In early December, HP and Lotus announced the integration of the HP VirtualVault 3.0 trusted operating system with the Lotus' Domino Web Server. VirtualVault integration with Domino means that customers with information-critical Domino-based intranets or extranets now can take advantage of VirtualVault's Internet security features.

Lotus Domino is an applications and messaging server with an integrated set of services that enable users to create secure, interactive business solutions for the Internet and corporate intranets. The Domino Web Server provides browser-based access to the Lotus Notes application-development framework. If implemented with VirtualVault, Domino is separated from the Notes database by the properties of VirtualVault. The mission-critical Notes database and applications thereby are protected from attacks over the Internet.

CH, CH, CH, CH, CHANGES THE BUSINESS OF HP IS E-BUSINESS

Process logic. It's one of the key concepts in client-server technology. If you can centralize your process logic on one or more servers you can easily upgrade and update your IT infrastructure. Now, imagine doing that on the Internet. If you can't, that's okay because HP has done it for you.

In early December HP, announced HP Changengine, a new software technology that enables dynamic change of business processes on the Internet.

It's a new HP Labs created software product: there are six active patents and three more pending. According to HP, Changengine will accelerate cus-

tomers time to market, reduce the cost of migration and change as well as mirror, measure and improve business processes.

Changengine is part of a brand new E-commerce initiative spearheaded by yet another new HP business division. Called the Electronic Business Software

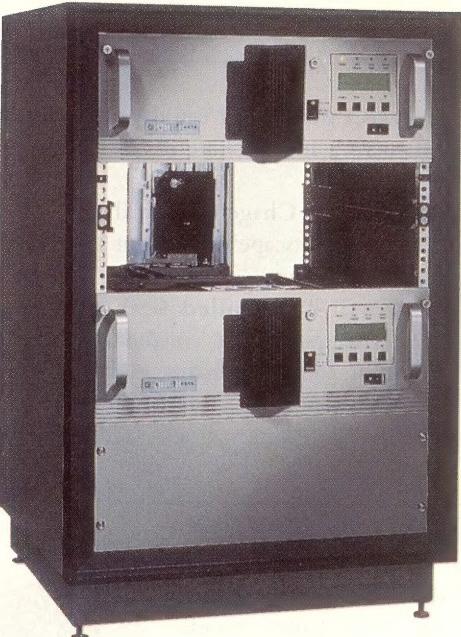
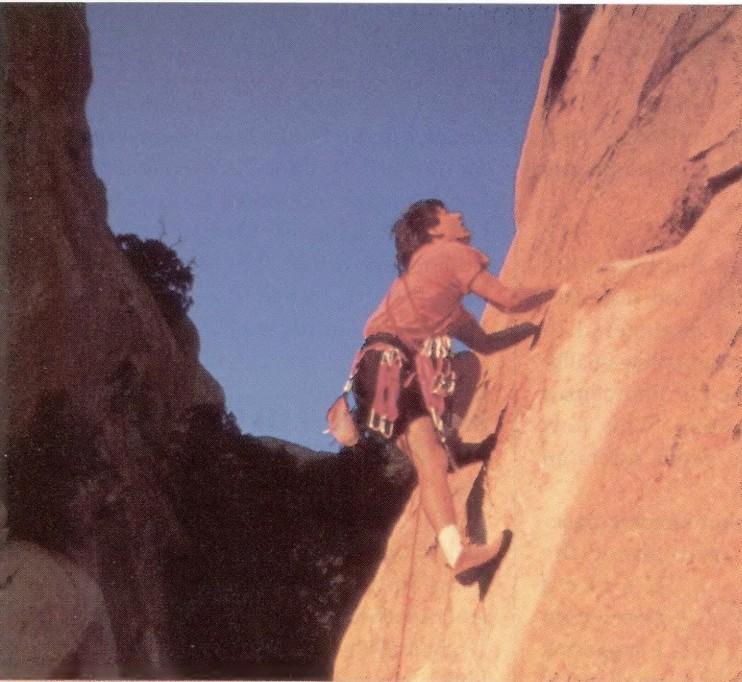
Organization (EBSO), within HP's existing Software and Services Group, its charter is to develop software products and frameworks that build a robust IT infrastructure and enable customers to rapidly accelerate their e-business processes.

Headed by Radha Ramaswami

FROM PRENTICE-HALL BOOKS TOP 10 BEST SELLING TECHNICAL TITLES

- 1.** *UNIX Network Programming, Volume 1: Networking APIs - Sockets And Xti* (second edition) Stevens, Richard, 1240pp, ISBN: 0-13-490012-X (1998) Cloth
- 2.** *UNIX System Administration Handbook* (Book\CD ROM) Nemeth, Evi/Snyder, Garth/ Seebass, Scott/ Hein, Trent R.; 780pp, ISBN: 0-13-151051-7 (1995) Paper w/CD-ROM
- 3.** *Windows NT And HP-UX System Administrator's "How-To" Book* Poniatowski, Marty/Hewlett-Packard; 576pp, ISBN: 0-13-861709-0 (1997) Paper Hewlett-Packard Professional Books
- 4.** *Practical Programming In TCL and TK* (second edition) Welch, Brent B., 688pp, ISBN: 0-13-616830-2 (1997) Paper w/CD-ROM
- 5.** *Core JAVA 1.1 Volume 1: Fundamentals* Horstmann, Cay/ Cornell, Gary; 672pp, ISBN: 0-13-766957-7 (1998) Paper w/CD-ROM
- 6.** *Year 2000 Software Crisis, The: Challenge Of The Century* Ulrich, William M./ Hayes, Ian S.; 624pp ISBN: 0-13-655664-7 (1997) Cloth
- 7.** *Color Scanning Handbook, The: Your Guide To Hewlett-Packard Scanjet Color Scanners* Day, Jerry B./ Hewlett-Packard; 304pp ISBN: 0-13-357211-0 (1997) Paper Hewlett-Packard Professional Books
- 8.** *ATM & MPEG-2: Integrating Digital Video Into Broadband Networks* Sommer, Peter / Orzessek, Michael/Hewlett-Packard; 352pp, ISBN: 0-13-243700-7(1998) Cloth Hewlett-Packard Professional Books
- 9.** *Successful Software Process Improvement* Grady, Robert; 336pp ISBN: 0-13-626623-1 (1997) Cloth HP PROFESSIONAL BOOKS
- 10.** *SNMP++: An Object-Oriented Approach To Developing Network Management Applications* (Book/CD-ROM) Mellquist, Peter E. / Hewlett-Packard; 256pp ISBN: 0-13-264607-2 (1998) Paper Hewlett-Packard Professional Books

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Basu, the EBSO intends to build an effective partnering and software distribution channel.

For example, HP Chagengine will be embedded into Netscape's SuiteSpot workgroup software and HP AdminFlow will be bundled with SuiteSpot for enterprise-wide collaboration. According to HP estimates, HP AdminFlow saved \$8 million for HP in internal administrative automation.

DON'T TAKE MY KODACHROME AWAY

Eastman Kodak may be laying off several thousand people, but the Big Yellow God of film manufacturing is making good with HP. The two companies have marked their ongoing two-year relationship with the availability of a jointly developed, co-branded inkjet photographic paper designed to pro-

duce photographic-quality images with the HP PhotoSmart PC photography system.

The new paper, called HP PhotoSmart Deluxe Photographic Paper, marketed by HP and manufactured by Kodak, was engineered to provide the best photographic-quality results available for the HP PhotoSmart PC photography system. This new inkjet photographic paper offers an ultra-high-gloss finish.

The new inkjet photographic paper is available today throughout the

United States with a suggested retail price of \$21.99 (U.S.) for a package of 20 sheets.

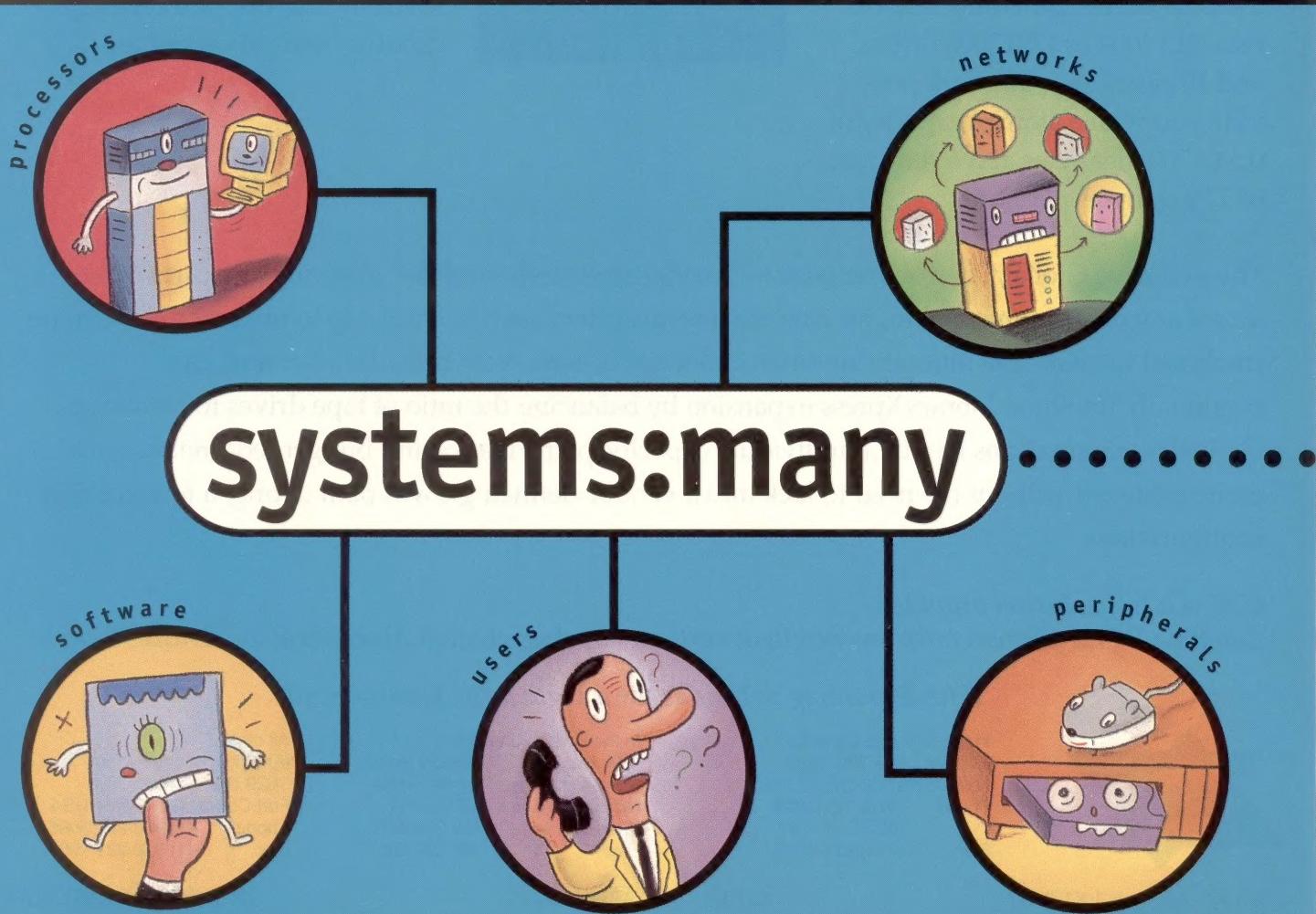
To date, the HP/Kodak alliance has

resulted in the HP Deluxe Photo Paper for the HP DeskJet 722C and 890C Series printers and special Kodak Photo CD offers with HP DeskJet printers. Additionally Kodak, HP Microsoft and Live Picture jointly developed the FlashPix file-format standard.

WHAT'S ALL THE HP HUB BUB, BUB OVER CONSTELLAR'S HUB

For Constellar (Redwood Shores, Calif.), an agreement for HP to resell their Constellar Hub software and services in the UK and Republic of Ireland through its Local Products Organization is a big deal. Constellar Hub, is a rules-based transformation hub operating with an Oracle database to produce a scaleable, manageable solution for data transformation, data movement and interface management.

The agreement is part of



Constellar's growth strategy and the development of their indirect channel through resellers like HP. It also provides HP customers the ability to acquire Constellar Hub product and services, as part of an integrated HP solution, through HP's Local Products Organization.

HP MAKES ITSELF AVAILABLE TO YOU

When it comes to 24x7x365 IT systems, availability is a must, not a luxury. That's why HP is concentrating on providing 99.95 percent uptime with its High-Availability (HA) solutions. First introduced this past May, HP recently unveiled four new HA configurations: two are based on the HP 9000 Enterprise Server Models D-380 and T-600, with availability this month. Two additional HA foundation configurations, based on the new V-2200 and

the K-570 are scheduled for shipment in February 1998.

In addition, HP also announced that EMC's Symmetrix Enterprise Storage systems will be available in HP's HA foundation configurations, making EMC the first partner in HP's Mission Critical Server Suite program. According to HP, these HA foundation configurations continue to be the most inclusive in the industry, spanning hardware, software, consulting and support services.

Mission Critical Server Suites are available directly from HP account representatives or certified HP resellers. Pricing varies depending on customer configuration. More information may be obtained by calling

1-800-HP-KNOWS or by visiting <http://www.hp.com/go/mcss>.

IF EVER THERE WAS A WIZ THAT WAS

Digital Equipment Corp.'s annual Windows NT conference will be held February 23-27, 1998 in Seattle, Wash..

Last year's conference was well-with attended at almost 1,700 people. Aside from Microsoft, the other major players in the NT market usually attend, including Oracle and many others.

While there isn't trade show, there is usually a vendor night with companies displaying their newest products without the annoying juggling. In-depth technical sessions make this a worthwhile event for all NT professionals. Visit www.nt-wizards.com for more information.

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HP'S COUNTDOWN TO KICKOFF

Soccer stands as the world's most popular sport. And the World Cup is arguably the world's most coveted team-sports trophy. Every four years, millions of zealous fans from around the world gather in the host city (similar to the Olympics) to watch their favorite teams "kick in the grass." The 1998 games, to be held at ten venues throughout France, are expected to draw 2.5 million plus spectators, and attract more than 37 billion cumulative worldwide television viewers (more than twice the overall viewership of the 1996 Olympic games held in Atlanta).

The ramp-up for the World Cup project is fast-paced, with most information technology implementations occurring just months before the tournament is scheduled to begin in France. When the World Cup's organizers looked for a company to be the official information-technology hardware and maintenance supplier to the 1998 World Cup, they chose HP.

THE BEGINNING OF A BEAUTIFUL FRIENDSHIP

"The organizing committee chose HP based on its well-deserved reputation for superior quality and mission-critical Internet solutions," said Philippe Verveer, chief information officer, Comite Francais d'Organisation. "HP's products and services are exceeding our comprehensive needs, and we are well on our way to a successful World Cup."

HP's integrated solution which will include more than 75 KINDS of HP products - will be the workhorse behind the scenes, managing the endless details of producing the largest sports media event of the century. Virtually every piece of computer hardware involved in World Cup '98, as well as medical and analytical equipment, will bear the HP brand.

With the '98 World Cup games only six months away, qualifying matches already taking place. Yet

despite the speed and real-time demands of the World Cup installation, organizers also need an infrastructure that is powerful, secure, reliable, and capable of operating smoothly across multiple distributed platforms.

Creating a solution that can scale to meet the tremendous demand for information and system access is a critical challenge of the World Cup '98 project. The *france98* web site (www.france98.com) alone is expected to generate between 10 to 20 million hits per day during peak periods. Other systems that demand high levels of performance and scalability include ticketing, media management, and results and statistics. The challenges of the World Cup '98 project mirror, in scale and complexity, what HP has been doing for the global business community for years.

IN HP WE TRUST

HP now has the opportunity to leverage the "trusted adviser" relationship that it has established with large, global corporations to address the needs and objectives of the World Cup. Specifically, HP will provide a complete IT solution, including PCs and data storage; printers and scanners; network servers, hubs and routers; notebook and palmtop computers; chemical analysis and medical products; as well as hardware services, support and consulting.

HP Domain Internet solutions will be at the heart of the entire system, including the communications system, the ticketing system and the power behind the *france98.com* Web site. HP equipment is being used to plan equipment needs at each of the ten World Cup venues. It will help manage accreditation and security. The IT system will manage the 350 staff and 12,000 volunteers needed to produce the France '98 games. HP chemical analysis products will be used for drug testing - and HP medical



equipment, such as defibrillators, will be on hand should a medical emergency arise.

A computer-aided design (CAD) system, which integrates graphics and a database of information, will create maps of the roads, railways, airports and city.

Blueprints of the buildings and stadia showing detailed placement of the seats will aid planning efforts. A central HP-UX server surrounded by workstations, terminals, PCs, printers and plotters will support the CAD system. These subsystems are linked through a LAN. Various locations are connected to the central CAD system through a WAN.

BEEN THERE, DONE THAT

HP has a long history of involvement in worldwide sporting events dating back to the 1972 Olympics. It was during the '72 games that HP first provided equipment for chemical analysis, which it continues to do today. HP also has supported the Tour de France, America's Cup, World Team Tennis, the Tottenham Hotspur Football Club in the UK and Major League Soccer in the United States.

However, by the time the World Cup '98 rolls to a close in July 1998, HP equipment and expertise will have played an integral part in the largest sporting event of the century. When the eyes of the world are focused on the games, HP equipment will be behind the scenes, supporting nearly every aspect of the event.

From ticketing to media management to the health and well-being of the players and beyond, HP will provide the complex, networked technology infrastructure that will invite the world to take part in the largest sporting event of the century.

HP 3000

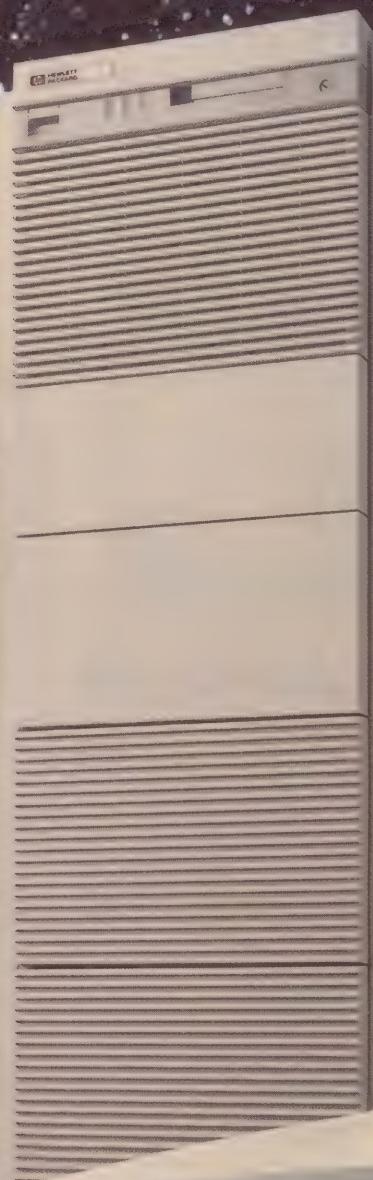
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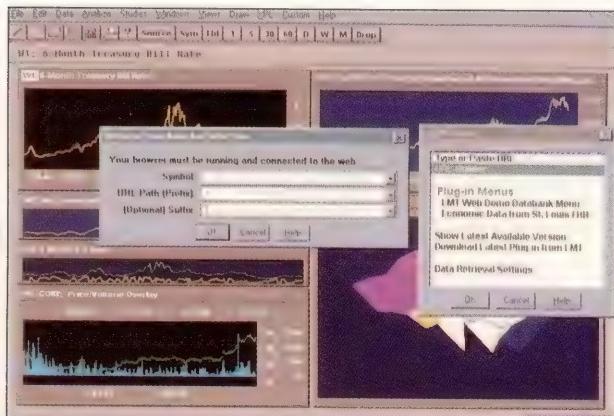


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CIRCLE 361 ON READER CARD

In today's turbulent financial marketplace, traders, investment bankers and analysts need the ability to gather various Web-based information and to see it in an easily understood graphical form.

Leading Market Technologies' EXPO/Web allows users of EXPO, an analytics and decision support software solution, to directly access and graph Internet/intranet times-series data without needing to import the data or cut and paste it from a browser.

A time series is a set of data that is taken by the time of each observation. For example, stock prices are a time series where the price of the stock at each observation (e.g., purchase) is tied to a specific time/date. There are

a growing number of sources which are making time-series data available on the Web.

Incorporating LMT's new co-browser technology, EXPO/Web lets EXPO users access and use Web-based data without ever leaving the EXPO application. Users type or paste in the URL or ftp address, or select from a pre-established list of sites.

The co-browser technology takes care of transparently accessing the data (via Netscape Navigator), interpreting its layout and making it available for use with all of EXPO's tools.

According to Larry Tabb, senior analyst with The Tower Group (Newton, Mass.), EXPO/Web allows the use of the Web to chart and plot information from a variety of sources without having to download all the information and put it into different formats.

"For example, [analysts] look at economic data from the Federal Reserve in St. Louis, NASDAQ and J.P. Morgan and can graph that data any way you want," says Tabb. "Other products can only grab and graph data from their own sites."

EXPO/Web then goes out, in the background, transparently retrieves the

requested time-series data and brings it directly into EXPO for graphing, charting and analysis. The EXPO/Web menu functions, like a bookmark in a browser, and allows users to customize their own list of data locations for point-and-click access.

EXPO provides open access to all major market data sources including FAME, LIM, Reuters, OPEN BLOOMBERG and Bridge IDF. These sites obtain this data from a variety of sources including exchanges and securities dealers.

The vendors turn around and provide this data to their customers via private leased network lines, magnetic tape or via the Internet and intranets.

EXPO/Web is available as a standard feature of LMT's EXPO, EXPO/ATA and BasketTrader products on Windows platforms. EXPO is priced at \$2,995 for Windows, and \$3,995 for UNIX platforms.

Get Your CD-R In Gear



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- Can handle all phases of CD authoring, pre-mastering and production
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CIRCLE 362 ON READER CARD

CD-Recordable or CD-R used to be considered a storage option for just engineers. Lately, it's become more user friendly.

Take Elektroson's (Campbell, Calif.) GEAR.wrks cross-platform toolkit for example. GEAR.wrks allows users to: format data files to conform to the ISO-9660 standard; write multisession and multivolume CDs; create audio CDs, loading .WAV, AIFF and Red Book files; use different CD-ROM formatting engines (ISO-9660, CD-XA, Digital Audio); and write images created with another authoring or formatting package (e.g., Video CD, CD-I and game formats).

GEAR.wrks consists of libraries of specific CD-R

functions. These libraries handle all phases of CD authoring, pre-mastering and production. Just create your individual application, link the CD-R commands to GEAR.wrks, and you are ready for the market.

To disclose the various toolkit commands, the dynamic link library, ToolK32.DLL (ToolK16.DLL for Windows 3.1) must be linked with the application module. The toolkit analyzes the command string, performs checking and data conversion, and transforms the command into appropriate functions calls in the Gear API W32.DLL (GearAW16.DLL for Windows 3.1). These command functions then generate callbacks to the calling application.

The callbacks (also called user interface functions) indicate the status of toolkit operations. These include the progress of the writing process, requests for missing parameters, and others.

The application can handle user interface functions in three different ways: use toolkit defaults, use custom functions or use a combination of both.

The application can also switch between default and user-defined functions at any

time. For this purpose an argument called Command-Mode of ParseCommand can be varied to call only subsets of the default user functions.

GEAR.wrks has integrated CD-R device drivers; there is no requirement to load them separately into memory. It also includes an advanced disc information tool; an automatic multisession volume creation and session selection; a read track option to generate audio and data tracks from mastered CDs; and an integrated log file generation for troubleshooting and security.

CD jukebox support enables writing multiple copies or controlling the placement of media in the jukebox. It provides full verification of formatted data before and after writing. It has a scripting language for Windows and batch file processing support for unattended mastering.

Is IT Safe?

James R. Dukart

When Ernst & Young asked 4,226 IT managers and professionals from around the world about the security of their networks, 75 percent of the managers indicated they believe authorized users and employees represent a threat to the security of their systems.

Seventy percent indicated they feel computer terrorists are a threat, 61 percent saw a threat from service providers, consultants and auditors, and 42 percent said competitors posed an information security threat.

And these threats are not just the fearful figments of IT managers' imaginations. Some companies have 40,000 vendors they do business with, and it all needs to be done securely. Enterprises are opening up to suppliers, customers and trading partners.

Forty-two percent of the Ernst and Young respondents reported they had experienced external malicious attacks in the past year, while 43 percent reported malicious acts from employees. "You don't like to think about the guy down the hall selling corporate secrets to competitors," says Patrick Taylor, director of product management for Internet Security Systems (ISS; Atlanta, Ga.). "But you need to concentrate on security from the inside rather than from the outside. A classic mistake is to think that just because you have a firewall you are safe."

By now, it should be evident that securing the networks that reside *behind* the Internet firewall is coming to the foreground as a major issue for corporate and IT staff everywhere. "You don't want to be like an egg, hard on the outside and all gooey on the inside," Taylor says of network security. "You'd rather be like an onion, with a more layered approach."

Poultry and vegetable analogies notwithstanding, analysts and vendors say the first and most important security layer is to have effective security policies. There are no "one size fits all" set of security policies that can be applied to all organizations. Rather, the best policies are attuned to the specifics of what the organization is trying to accomplish, not only in terms of security, but in terms of the overall IT infrastructure.

Security policies should include a set of expectations detailing what the enterprise expects to see on its network and the risks it is willing to take. Taylor also says that all policies must incorporate some kind of auditing or monitoring mechanism. "Your policy may be that you do not allow personal Web sites," says Taylor. "You can watch the traffic and see whether this is happening. Or, you might want to probe your network to see the current versions of HP-UX or NT to make

sure they have the latest security patches."

Policies might tell you to disable all default accounts on new machines, because a default account creates an opening for unauthorized users. In all cases, though, the best policies are no good unless you can see what is happening. Sean Leonard, senior product manager for HP's Praesidium suite of security products, concurs. "Technology is only one part of security. A part that often gets overlooked is the education of the personnel. You can use the best technology for authentication, and someone goes and gives their password away to a friend. Providing end-to-end security is about more than technology. One of our large clients is a U.S. bank, for instance, that requires that all employees view a video about network security."

Leonard stresses that HP is not interested in developing all the tools that go into an effective security solution, but rather in helping clients determine specific needs, develop

strategies and pick the right tools. "In the security market today, most people are working with authentication and virus protection. One major area, for instance, is application security. Firewalls are like traffic lights — great for keeping people out. But once inside, if you don't have some security mechanisms built into your application, you are at considerable risk. We offer a number of things, from encryption technology to authentication servers to the Virtual Vault, which acts as a middle tier between a client Web browser and your information systems on the back end."

Bob Aanerud, a principal with Ernst & Young's information security services practice, says security strategies need to address four areas. First is the perimeter, which includes modems, firewalls and desktops. Each device needs policies attached to it and a way to assess performance and risks.

Second, enterprises must look at administration, auditing and alarming systems, because a security system

REMOTE ACCESS DRIVES SECURITY IN SAN BERNADINO

The county of San Bernadino in southern California spans more than 52,000 miles, making it one of the largest counties in the United States in terms of geographic area. As a result, Mike Meakim, information security officer for the county, says county workers often need to access the county's information network while on the road, not only within the county but also when traveling throughout the state and the country.

Meakim oversees the County of San Bernadino's Defender Security System from Axent Technologies (Rockville, Md.). He says currently more than 500 county workers are online, and that he is adding users as rapidly as he can. The Defender system includes a firewall as well as authentication systems that feature tokens and randomly generated passwords that users enter via a handheld calculator to grant access to the system.

"I see security concerns driven by telecommuting and remote access," says Meakim. "As mobile computing grows, so grows our need to make sure we are more secure no matter where someone is when they access the system. Originally, the system was used by the information services department, and security was perhaps not such a big concern. But now we have child welfare people, probation officers and court administrators using the system. So yes, I am very concerned about security." - JD

NO "PHONY" SECURITY AT GTE

Tim Tuttle, manager of information security for GTE (Tampa, Fla.), is in charge of securing more than 10,000 hosts from a central site. He's been using Memco Software's (New York, N.Y.) SeOS product for about two years, and says it has helped him reduce the "never ending spiral of security administration."

"Security was just getting out of control as we kept adding new servers and new users," Tuttle says. "It just didn't make a lot of business sense to keep hiring all these new people. SeOS at least answered that part of it for me. Now from my office in Tampa, it can pop up where our hosts are and one administrator can monitor a very large network."

Tuttle says SeOS' ability to control the superuser or root access in UNIX was very important to him. First, he says, it lets him control who can log in as root and who cannot. Then, even if someone who was supposed to be kept out, gets in, SeOS will prevent the root user from erasing his or her audit trail. "Thankfully, we've just about eliminated that particular issue."

In addition to SeOS, GTE uses a mixture of security technologies and strategies. For authentication, Tuttle says the company uses passwords, smart cards, encryption keys and various forms of "biological" authentication such as fingerprints, voice prints and retinal scans.

GTE faces new internal security concerns as a result of telecommunications deregulation. By law, GTE must open up portions of its network to competitors, as in the case of a local interexchange carrier needing access to GTE customer billing information. The challenge here, according to Tuttle is making sure these competitors can go where they need to go without getting to other protected parts of the network.

GTE does not have one blanket network security policy that covers all operations, but rather five or six different policies and an organizing committee that helps coordinate security. Tuttle notes that among the challenges the committee faces, security policies have to be closely tied in with overall IT policies.

"You almost have to marry the two. "A few years ago, if I came out with a security policy that said your password was eight characters long and the minicomputer only took six, we just sort of winged it. Now we get into things like I need to encrypt this, but if I do I cannot export it. So the Internet has really changed the model of security, since we are now cross more than 50 countries' borders."

Regarding the threat posed by disgruntled employees, "Today everyone [inside GTE] is an angel. But tomorrow someone gets laid off and may be mad and they are going to do some damage. I have to be able to change the person's access and powers within seconds, usually at least by the time they are told they are being let go. Used to be I had two or three days to do it." — JD

needs to constantly test for weaknesses and let administrators know when security has been compromised.

Third, companies need to secure data. This can be done through security built into application software or through products like Memco Software's (New York, N.Y.) SeOS (Security for Open Systems) that limit access to servers.

Finally, companies need to secure the transmission of data around the network. Strategies include encryption, authentication and smart card technologies, as well as securing telephone lines that carry communications and switches through which information passes.

Aanerud likens this last area to carrying money from a bank in a Brinks truck. Every time information is moved, he says, a security risk is encountered. "It's very much like the physical world," Aanerud says. "You have to look at the inside as well as the perimeter. And you definitely have to be aware of what employees are doing inside your shop."

You have to assume, for instance, that the laptop your sales force is working on has a high value point, due to the access it can grant to the overall network. There's certainly no single solution. Security involves using a number of tools and strategies and doing your best to minimize risk."

Today, the most mature security tools are firewalls and virus protection software. According to Pete Privateer, senior vice president of operations for Axent Technologies (Rockville, Md.) "Firewalls are like a lock on the front door. You are probably giving the keys to the lock to a number of people, plus there isn't a lock out there that can't be broken into by someone. In some break-ins, you may have left the door unlocked, but more often than not the problem is someone from within trying to abuse the system."

Moreover, with the maturation of the firewall market, many vendors are starting to bundle authentication, password, fraud detection or encryption technologies with firewall offerings. For instance, CRYPTOCARD (Toronto, Ontario) recently an-

nounced an agreement to provide the CRYPTOCard authentication server within Trusted Information Systems' (Glenwood, Md.) Gauntlet firewall.

By embedding the ability to do random passwords into firewall products, we are reducing one level of complexity," says Stephen Seal, vice president of technology and development for CRYPTOCard. "When you no longer have to attach an authentication server to a firewall, you close one of the security holes." CRYPTOCard has similar agreements with Raptor Systems (Waltham, Mass.) for its Eagle firewall and with Cisco Systems (San Jose, Calif.) for the CiscoSecure ACS 2.0 access server.

"Firewalls will not — nor should they — go away," says HP's Leonard. "They are absolutely critical to protect access to the network, they just don't do much to protect the data inside." Data protection is where a company like Memco Software steps in. Memco Software provides server or host protection through its SeOS software. SeOS runs as a daemon on UNIX systems, actively processing in the background at all times, watching for any attempt to log-in as a root or superuser or enforcing pre-set restrictions on various users.

This is particularly important in UNIX environments, according to Dorin Miller, Memco's vice president of marketing. "Mainframes were designed with the idea that a security mechanism could be attached to make access calls, but UNIX has the superuser (root) log in, which lets you do whatever you want in the system, no questions asked."

Indeed, UNIX's design lets a root user kill any process, access any file or open any device. Worse yet, root is a generic, shared ID, which may be held by many people within an organization. SeOS addresses this by forcing users to log in with their private IDs in order to attempt to get root to access.

Any attempt to log in as root must first pass an access table, and even authorized root users cannot erase their audit trail. Memco is also bundling SeOS in with other security technologies. In April, Memco announced that



SeOS would be available on Check Point Software's (Redwood City, Calif.) Firewall-1 firewall. SeOS is also found in Tivoli System's (Austin, Texas) TME 10 Security Management Solution product suite.

"We provide protection for data at rest," says Memco's Miller. The truth is data spends most of its life resting on a server. If you don't protect it, you have a very attractive target for a hacker or for anyone wanting it."

Data also can be accessed from non-server sources. Security holes exist anywhere a device resides, whether or not the data on the device itself (e.g., files on a laptop) or through the access that device may give to the overall network. Thus security frameworks also should include monitoring and detection software. ISS markets a suite of products called SAFEsuite to monitor network devices and detect and report on security breaches.

ISS' flagship product is called Intranet Scanner, which continually probes all devices in a network to detect vulnerabilities and threats. Of particular concern are less-used devices such as print or fax servers, according to Patrick Taylor, director of product management. Because these devices are rarely used continually by any one user, Taylor says, penetration may go unnoticed for longer periods of time, increasing the risk that an intruder can do harm to the network or data.

ISS also offers a new product called RealSecure for Windows NT, a real-time attack and recognition program and response tool that looks at packets as they cross the network, alerting administrators, via voice-mail, e-mail or pager, to unwarranted or unexpected traffic. Taylor likens RealSecure to a "security camera in a building lobby," saying the idea is to monitor and record activity so that problems can be seen, acted upon immediately or played back later for review.

Other companies that are rolling out such detection and monitoring devices are Network General (Menlo Park, Calif.), Intrusion Detection Inc. (New York, N.Y.) and WheelGroup (San Antonio, Texas), a two-year old company with roots in the U.S. Air

Force Information Warfare Center. Detection and monitoring tools are being built into firewall and security product bundles, as represented by ISS offering Internet Scanner through Secure Computing Corp.'s (St. Paul, Minn.) Security Professional Services offering.

With more than 600 companies offering some kind of security product or service and with the increasing expansion of networks and their links to the outside world, one major area of concern for enterprises is the management and administration of security. Ernst & Young's Woolley says this is one of the biggest concerns of systems administrators. "If I have Memco and

Ascend and about a dozen other vendors, I have to figure out how to manage them all, how to make them work together," Woolley says. "You can easily end up with a Swiss cheese security environment — full of holes caused by the fact that there are security gaps between the products you are using."

Security management is the driving force behind Computer Associate's (CA; Islandia, N.Y.) Unicenter NSO (Network Security Option) software. According to Steve Mann, vice president of product strategy for CA, Unicenter's strength is that it uses policy-based management-agent architecture that can be deployed on a system, platform, network, database or even a

COMPANIES MENTIONED

Axent Technologies

Rockville, MD

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Check Point Software

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Hewlett-Packard

www.hp.com/go/security

CIRCLE 338 ON READER CARD

Internet Security Systems

Atlanta, GA

www.iss.net

CIRCLE 337 ON READER CARD

Intrusion Detection Inc.

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Memco Software

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Secure Computing Corp.

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Tivoli Systems

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CIRCLE 331 ON READER CARD

Trusted Information Systems

Glenwood, MD

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WheelGroup

San Antonio, TX

www.wheelgroup.com

CIRCLE 329 ON READER CARD

specific application. Mann says the software lets you set security rules that are exported to the devices or "agents" that are to be affected by the rules.

The agents, in turn, continually report to the centralized server or "management" regarding their status and use. "For example, if you are monitoring memory utilization, the agent will report all memory usage, and will alert you when something is not right. It is intelligent enough to find the right manager to report to. In turn, a server or manager in itself can fail. In that case the agent will look for the same management application on a different server."

Mann goes on to say that Unicenter technology has proven effective for things beyond security. He says Lehman Brothers uses it to monitor financial fluctuations on its holdings and that Ben & Jerry's uses Unicenter to monitor ice cream production. "Security in itself is critical, but companies should also look at other ways to monitor systems and increase productivity," he says.

In the final analysis, network security is an exercise in risk versus reward.

Organizations should seek a balance between the costs to protect information and the value of the information itself. In addition, balance should be sought between the benefit an enterprise gets from increased exposure with the risks inherent in that exposure. To return full circle, this is why security policies are so important.

Enterprises without them can easily overextend security on data that does not need critical protection, or fail to provide adequate security for mission critical items and systems. "No silver bullet will remove all the risk," says ISS' Taylor. You are always adding new devices to a network, and every time you do, you have to re-think your security. Security is not really about products — it's all about process."

-James Dukart is a writer with the Washington News Bureau.



Thomas,
Legal Department

Hasn't lost a case
in 10 years.
His computer files
are another matter.



Victor,
Accounting

Insists on backup for
all expenditures,
but doesn't always
back up his files.



Don't let the **SUN** go down on me

What do you do when one hour costs you \$87,000?

Time really is money for Romac International (Tampa, Fla.), a specialty staffing services firm, providing temporary contract and permanent placement of professional and technical personnel. Romac was founded in 1966, but when it merged with three franchisees and went public in 1994, its fast enough Sun UNIX platform running an Informix database couldn't process data at its 30 new locations.

Romac needed a distributed solution that scaled as the company grew. And it thought it had one from Sun Microsystems. Sun replaced a Sequent system with Solaris OS and installed two 8-way SPARC Center 2000 servers (at the Tampa headquarters and the Atlanta, Ga. office), X terminals throughout the national enterprise, and frame relay for communications between locations. "But back in '94 and '95, Sun servers with the new Solaris OS weren't stable; they just needed more work before they went on the market," Graham says. There

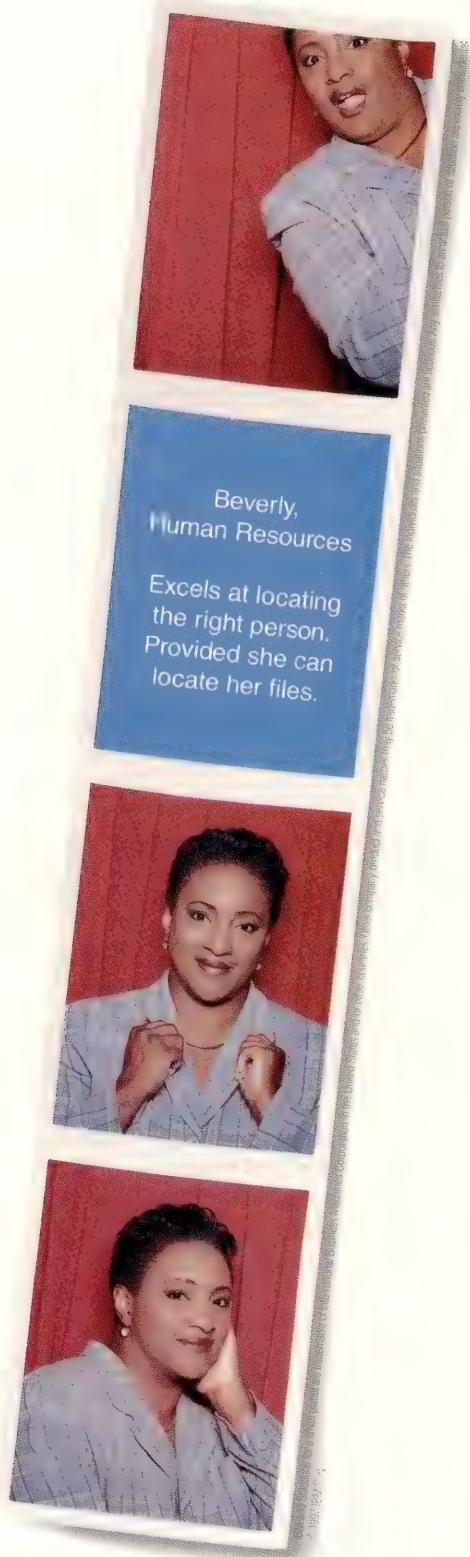
**HP-UX And
Windows NT
Provide
Permanent
Help At
Romac
International**

John Harney

were more crashes at Romac than on the NASCAR circuit. What's a CIO of a company growing at 50 to 60 percent to do?

The system's instability also undermined most aspects of the entire platform's daily performance. And Sun was gradually pulling its support. Push came to shove when "I couldn't run the existing system 40 hours straight without it crashing," says Graham. "You don't spend \$2 to \$3 million for THAT." Romac had devoted 18 months to the Sun effort. The improvement was marginal.

Enter the HP "Trade Up Program," a competitive HP strategy that made it financially and technically easier for Sun customers to migrate to HP solutions. As one of the original bidders on the project, HP understood the scope and challenges of Romac's problem. And HP came to deal, agreeing to buy back all of the Sun equipment and resell it through one of its third-party reselling programs. "The equipment had depreciated by 40 to 50 percent in 18 months," says Graham. "HP offered us a generous amount for it."



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dismantled the Sun platform (about 500 devices) and replaced it with a customized HP UNIX/Windows NT solution.

FORTY DAYS AND FORTY NIGHTS

Then, from November 18 to December 28, 1996, HP helped Romac turn out the lights on Sun. HP — with the help of its Channel Partner, Waldec-IKON Technology Services (Tampa, FL) — dismantled the Sun platform (about 500 devices) and replaced it with a customized HP UNIX/Windows NT solution. "Our

roll-out was very ambitious, but it went well. There were no technical problems," says Graham.

HP installed 425 seats over 30 locations in six weeks. The Trade Up Program was over at the end of '96, so Graham had to quickly take advantage of it. So we conducted a 30-day pilot where we tested all the major applications in the new environment.

According to Graham, speed,

change as well as a more intuitive interface were the business drivers propelling development of the system. The new environment features a three-tiered client-server architecture that mirrors the corporation's three organizational tiers: corporate, market, and individual. The corporate tier, where all data is centralized, runs on the HP-UX with two HP 9000 K420 enterprise servers linked to an Informix database.

The marketing tier manages all Romac's market data on 22 HP C- and D-class enterprise servers running HP-UX and 22 HP NetServer LX Pro Servers running Windows NT. The individual tier features 425 HP Vectra desktops running Windows NT. The three-tier architecture lets the system scale "both vertically and horizontally," explains Graham. You can ramp up to more powerful hardware and software as well as out with more workstations.

hp 3000/9000 Remanufactured

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CIRCLE 213 ON READER CARD

Romac opted for a UNIX/NT hybrid so it could exploit the strengths of each "We wanted NT for office automation — file, application, and print servers — and UNIX for IO-intensive processing"

WHOA, O DOMINO

So, with an ostensibly bulletproof platform in place, Romac still needed a quicker, digital method to process candidates' resumes and clients' job orders — even while the company convulsed with growth and change. The answer was the Lotus Domino Web server. Romac dropped Domino into the existing Lotus Notes infrastructure on the corporate intranet.

In the past, clients phoned a Romac recruiter, traded voice mails, then sent in a job order. The recruiter found acceptable candidates in the Romac database, then called back the client. After more voicemail and two or three days, Romac sent out a candidate. Now it's a bit different. Even with over 75,000 clients and 380,000 candidates in 16 market areas, recruiters receive job orders, screen candidate resumes and post the job description to suitable candidates — all over the Internet — and get candidates in interviews in half a day.

"Most of the resumes come in electronically," says Graham. Of course, the goal is to get them online to accelerate customer service. But he also points out that "some clients will not deal with you if you don't do electronic commerce." Romac spent \$2.6 million on new hardware from HP and another \$300,000 on UNIX and NT integration from Waldec-IKON. Graham expects a two-year return and three-year ROI of about 28 percent.

"The joke is 'CIO' stands for 'Career Is Over,'" says Graham. In corporate America, CIOs average about 22 months in their jobs. With these kinds of challenges, it's not hard to see why. In Graham's case, however, the acronym should read: "Crisis Is Over" or at least "Career Is On-Track."

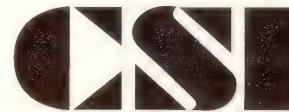
John Harney is with the Washington News Bureau.

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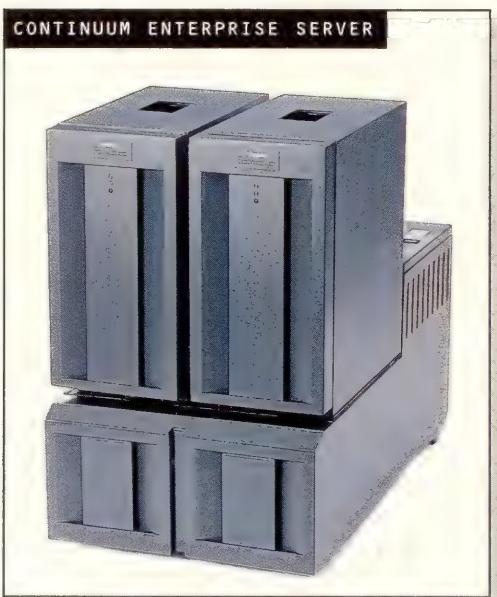
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Have Output, Will Travel

Carlson Companies Bring Mainframe-Level Reporting Capabilities To Client-Server Applications

David Baum

Output management tools and utilities have reached maturity in the mainframe data center, but they are still in their infancy on UNIX and PC platforms. IT professionals at Carlson Companies (Minneapolis, Minn.) faced this issue last year during the development of a government reporting application for Carlson Wagonlit Travel.

"There is a tremendous amount of auditing and tracking that has to take place for Carlson's large commercial and government customers," says Kelly Sjelin, a report management analyst at Carlson Companies. "Our mainframe computers and data center utilities carry the bulk of the processing load. We want to exploit the cost advantages of distributed processing and desktop applications as well."

Each year, Carlson Wagonlit Travel books more than 20 million airline seats, seven million hotel room nights, and six million rental car days. In fact, in one week the company books more travel than 99.9 percent of U.S. travel agencies book in an entire year. Much of that work is done on behalf of large corporate and federal government clients. The travel division is co-owned with the Accor Group (Paris, France), another internationally known hospitality and travel company.

In the mainframe environ-

ment, Carlson administrators use INFOPAC-RDS to retrieve reports from multiple mainframe sources, break down reports for distribution and prepare report output in multiple formats. They also have JES, a reliable and predictable way to manage printing and output management tasks. But Sjelin and his colleagues were hard pressed to find an equivalent set of capabilities for PCs and UNIX systems.

For example, accounting reports itemizing travel expenditures by Carlson's government customers must be sent to Carlson travel agents at more than 400 locations around the country. "The reports can sometimes number 2,000 pages each," Sjelin adds. In April 1995, developers at Carlson Wagonlit Travel asked Sjelin and others in the central IT division to come up with a client-server output management infrastructure that many applications could leverage. "We wanted a simple, reliable way to burst, bundle, collate and distribute graphic-rich reports, along with the capability to predefine the distribution of printed reports in multiple formats," Sjelin explains.

At first, they considered building an output management solution themselves, but they quickly realized that this wasn't practical. A six-month evaluation period ensued, during which Carlson considered off-the-shelf and custom solutions from a number of leading output management vendors, including

Interleaf (Waltham, Mass.), Computer Associates (CA; Islandia, N.Y.) and Dazel (Austin, Texas). "Interleaf's focus is document preparation and management," Sjelin notes. "The product is very strong in managing multiple revisions of documents through a check-in/check-out facility, but it is missing most of the functions that Carlson requires for print management and distribution."

Meanwhile, CA-Legent's main focus was on documents produced by mainframe applications. Its key products for distributed computing environments are only available for the IBM operating systems: OS/2 and AIX. Dazel came closest to providing the complete functionality Carlson needed with its Dazel family of output management solutions for client-server environments — the Dazel Output Server and Dazel Express.

The Dazel Output Server is an output management infrastructure that gives system administrators full control over their printers, networked fax modems, pagers and other output devices from a unified interface on UNIX and Windows NT servers. Dazel Express brings all the functionality of the Dazel Output Server to client workstations via a GUI on Windows, Windows NT and UNIX Motif workstations.

Customization work by the Dazel consultants was begun in January 1996 and completed six

months later. The major thrust of the development project involved providing specific archiving and collation capabilities. Of special importance to Carlson was the ability to assemble customized packets by selecting and collating excerpts from several reports.

With an eye toward the modern PC applications used by Carlson Wagonlit Travel associates, IT managers leveraged Dazel's support for report formats above and beyond those supported by INFOPAC-RDS, particularly PostScript. They also configured the Dazel Output Server to handle multiple delivery options, from LAN-based printers to remote fax machines to corporatewide e-mail. "Dazel offers a good solution for sending information to a number of destinations in a number of formats," Sjelin says. "Once the information packet has been assembled, it can be distributed on disk, paper, online and by many other means."

PUTTING DOWN ROOTS

Today, the Government Reporting Application is in full production mode and includes automated collating, bundling and distribution of graphical report output. "It used to take operators about 24 man-hours to collate reports manually and get them ready for shipment. Today, it takes an hour or two at most. That's a recurring time savings every month," Sjelin says.

Operators can still assemble and mail hardcopy reports to those users who prefer it this way. Alternatively, users can have report output sent directly to their own printers, fax machines and e-mail addresses. Sjelin says, "Output is automated for each destination, according to each user's individual preferences. They simply pick up their reports in any supported format from any supported destination."

During printing, the output management software provides real-time, automatic tracking and feedback. Users can track their jobs through the delivery process to find out if a job has completed, is waiting to be delivered or is still processing. "By subscribing to various events, such as 'job complete'

and 'printer out of paper,' users and administrators can be notified via e-mail, paging or interapplication messages of the status of their jobs," Sjelin says.

Users also can use the Dazel capabilities for ad-hoc reporting when using PC-based applications such as Crystal Reports, Microsoft Excel, Microsoft Word and Platinum InfoReports. Users work from a GUI to request reports, look at print queues and route output to any given destination. Most Dazel clients run Windows NT at the desktop.

Dazel Output Server is installed across two HP 9000 UNIX systems, and will ultimately be installed on several more HP 9000 servers attached to Carlson's Token Ring WAN.

There also are several dozen Windows NT servers on a high-speed network to host other Dazel installations as the number of client-server applications grows. Sjelin says, "Dazel

also supports the concept of a Delivery Farm, such as a print farm or fax farm. This helps support Carlson's high volume output requirements by having a single queue feed many physical destinations, with each of the physical devices servicing jobs on a next-available basis."

For Sjelin and other developers, the Government Reporting Application is a solid proof of concept for other client-server applications to come. "The output management problem will occur again and again, but we can reuse this infrastructure with other applications," he concludes. "We now have a server-based solution that many applications can leverage."

Dazel Corp. can be reached at 301 Congress Ave., Ste. 1100, Austin, TX 78701; (512) 494-7300; info@dazel.com; www.dazel.com.

David Baum writes extensively about business solutions. Reach him at dwbaum@silcom.com.

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X Windows On Your TERMS

I went to the grocery store yesterday for my usual lunch break. At the checkout register, where they keep

all the really good lunch stuff behind the counter so you have to ask for it, I asked for two Nestle Crunch bars and three milk chocolate Hershey bars. After paying for them, I reached over to pick them up. Hey! The bagger must have put them in the previous person's bag. Because I ordered them, I figured I should have gotten them. Believe it or not, it got me to thinking about a common question asked by new X Windows users.

It usually goes something like this: "I did a telnet to host xyz, then started my application (asked for three Hershey bars) and it never appeared!! Or they got a *Can't Open Display* error message. Of course, the answer that system administrators get sick of giving is almost always correct: "You must set your DISPLAY variable to the host name you are sitting at". This is because X Windows applications try displaying the application on the display (host) named in the environment variable called DISPLAY.

NOW YOU SEE IT

This means that the typical sequence used to start an application on another host to be displayed where you are sitting, is as follows:

1. Allow the remote host to display locally (a security issue)
2. **telnet** or **rlogin** to the other host
3. Set the DISPLAY variable to the name of the host you are on

4. Start the application

For example, if you are sitting on host swift, and want to start an application on host puxy, to be displayed back on swift, here are the commands that might be used, showing both C shell and korn shell versions where they differ:

1. **xhost +puxy**
2. **rlogin puxy**
3. **setenv DISPLAY swift:0.0** (in the C-shell)
export DISPLAY=swift:0.0 (in the korn shell)

In step 4, you would use the proper command to start the application. Note that in some environments, step 1 is not needed. This is either because a newer form of security is being used, or it was done already, or no X windows security is in use (shudder). Note that you always have to connect to the other machine, then start the application, but why can't the setting of the DISPLAY variable be handled automatically? I mean, if I ask for an application (Hershey bar), it should be displayed (given) to me! Well, this does happen automatically on some systems.

An email from Tom Smith addressed how he solved this issue, and several others, at his site. There was plenty of

good stuff in his email, but I'm extracting the relevant parts for this issue. Thanks Tom.

First, Tom spent some time figuring out why only some users had to deal with setting the DISPLAY variable. It turns out that **rlogin** and most versions of **telnet** never propagate the DISPLAY variable (including HP-UX) to the remote host. There were a couple versions of **telnet** that do send the DISPLAY variable to the remote host, this includes OSF/1, and recent versions of Linux. The solution Tom implemented at his site was based on the fact that all versions of **rlogin** (**telnet**) pass the TERM environment variable to the remote host. This being the case, it was a matter of encoding the desired DISPLAY setting into the TERM variable in the local host, then extracting it on the remote host.

NOW YOU DON'T

Sounds simple, doesn't it? But there were many issues to be worked out. For example, many operating systems and

There are a couple of things to remember: First, telnet changes the content of the TERM variable to lowercase. Second, you must handle unset TERM and DISPLAY variables in your scripts.

users have shell startup files that "change" the TERM variable — these all had to be cleaned up. Also, these files had to be setup for all users, and all shells being used, and work on all oper-

ating systems in the network. Other than that, the actual procedure of using the TERM variable to pass data to the remote host is pretty straight forward. Users will invoke a script instead of **rlogin** or **telnet**.

Here is the general flow of the script:

1. Add the current DISPLAY setting to the TERM variable in a way that it can be easily extracted.
2. Invoke **rlogin** or **telnet** (whichever you prefer) to the desired host.
3. Optionally, this script can handle checking of the **xhost** security setting.

For example, this simple korn shell code would work (but should do much more error checking and handling, like for null variable setting):

```
TERM=$TERM:$DISPLAY  
rlogin $1
```

All we did here was to add the content of the two variables together with a ":" between them. For example, if before the script was run:

```
echo $TERM $DISPLAY
```

resulted in:

```
xterm swift:0.0
```

then the script would set TERM to contain: "xterm:swift:0.0", then perform the **rlogin** to whatever hostname was specified on the command line (the meaning of \$1 in the code above).

Now that the data we need is in the TERM variable, remember that all login scripts must check for this data (at least on hosts that people run applications remotely on), and separate the two pieces of data into the proper variables. The login startup files are .profile or /etc/.profile for the korn shell, and .login for the C-shell. Here is an example of a profile file section that checks for the ":" in the TERM variable, and if it exists, strips the parts into the two variables.

```
if [[ $TERM = *:* ]]; then  
    DISPLAY="${TERM%*:}"  
    TERM="${TERM%::*}"  
fi
```

The first line uses the korn shell built

in test command ([[]]) to see if there is a period ":" in the TERM setting, if so, it assumes that we have an encrypted display name to be extracted. The korn shell built in string manipulation metacharacters are then used to extract the data. The "\${TERM#*:}" means to remove everything up to the first ":" from the TERM variable, and "\${TERM%::*}" means to remove everything after (and including) the first period (:). Thus, if \$TERM was set to "xterm:swift:0.0" by the script that started a remote session, this section of code would set DISPLAY to "swift:0.0" and TERM to "xterm".

COMING TO TERMS WITH TERM

There are a couple issues to remember if you decide to implement something like this. First, telnet changes the content of the TERM variable to lowercase, this is probably not an issue for the DISPLAY variable setting. But be care-

ful; here is an example of this in action:

```
$ TERM=EATCHOC  
$ telnet swift  
$ echo $TERM  
eatchoc
```

Another issue, is that you must handle unset TERM and DISPLAY variables in your scripts. Also note that when using remote hpterm and dtterm tools in VUE and CDE, this is not needed, it is done automatically. Finally, you must let everyone know the names of the scripts, and be sure they don't do TERM and DISPLAY variable settings in their own startup scripts. Now, if there was only a CONSUMER variable I could set for the cashiers at the supermarket, I might start getting what I ask for. Imagine that.

—Set your variable to FRED at frederm@famece.com to get the help you ask for in your UNIX sys_admin duties.

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OpenNT: Foo Me Once

I love a good command line prompt. Don't get me wrong, I think GUIs are a great thing. But,

there is something about being able to type

```
find /i "foo" *.*
```

instead of opening the NT Explorer, selecting Tools, Find, Files or Folders, Advanced Tab and typing **foo** in the Containing Text box. And don't forget to click Find Now.

So, if for no other reason than to save wear and tear on my mouse, I usually have a command prompt window open on my desktop. NT's command prompt is called CMD.EXE. It is not the worst command prompt out there. But if you have a UNIX background, you're going to be disappointed; multiple commands cannot be entered on the same line.

And redirecting error messages doesn't work for many commands. String manipulation is non-existent. Most troublesome for shell programmers, the only conditional processing commands are **IF** (without **ELSE**) and **FOR**. So, if you want to do serious programming for the command line, you are going to need more software.

ENTER OpenNT

Softway Systems Inc. (San Francisco, Calif.) has developed OpenNT, a product designed to integrate NT and UNIX. OpenNT is designed to turn your NT system into a platform capable of running Windows and UNIX applications, including X Windows applications. While providing a command shell

is just one of its features, the C and Korn shells will be a welcome addition to many NT desktops.

Installation of OpenNT 2.0 is straightforward. The setup program guides you through installing OpenNT Server, which includes the command shells, X11 Server, and an X11R6 display server with fonts. On a Wintel platform, about 75MB of disk space are required for all these options, including Adobe Acrobat-based online documentation.

If you are installing the Software Development Kit (SDK), an additional 51MB are required. The OpenNT SDK works in conjunction with the Microsoft Visual C/C++ to allow you to compile UNIX and X Windows applications so

they run on NT.

The installation process creates two program folders — OpenNT and OpenNT X11 Server — with two program icons. Launching the Korn shell from the OpenNT folder reveals the familiar dollar sign prompt. The process status command **ps -eaf** shows the Korn shell process and the **ps** process.

It doesn't report any regular Windows NT processes that are running. This actually safeguards the NT processes from being terminated by someone using the **kill** command. A little more experimenting uncovers all the familiar UNIX commands such as **ls**, **grep**, **cat** and **df**.

For those who think that Microsoft Notepad is just too bloated for text processing, **vi** is available in all its gory glory. Scripting tools such as perl, awk and Tcl/Tk are included. All the basic Internet clients are available from the Korn shell. According to the documentation, over 200 UNIX and X11R5 commands are included.



xterm is just one of several dozen X11R5 applications that are included with OpenNT. Your NT system will be able to act as both an X Server and a client.

There are several versions of OpenNT. Workstation Lite provides the UNIX shells and an X11R5 runtime. Workstation provides a X11R6 display server and a single user telnet server. The display server makes the telnet server multiuser. Other options are the Software Development Kit, OpenNTiF, a Motif window manager and OpenNTiF Software Development Kit for developing Motif applications.

The telnet daemon provided with OpenNT Server turns NT into a multi-user operating system. Users across your network will be able to telnet to your server and log in.

Installing the daemon was simple. A single command in the Korn shell installs **telnetd** as a service. Once installed, the service can be started from command line. The telnet service can even be set to start automatically at the time the system boots by checking the appropriate box from the Services icon in Control Panel.

Logins are authenticated against the NT user database and this seems to work fine. File protections were enforced admirably on my NTFS formatted volume. However, a telnet login was refused when my account was set to "User Must Change Password at Next Login." I was unable to understand this problem, but clearing this checkbox in NT's User Manager allowed me to log in. OpenNT doesn't support the **passwd** command for changing passwords.

GO AHEAD, OPEN UP TO UNIX

Another option for OpenNT is an X Windows server. It is X11R6 based and works quite well. Included are several dozen X11R5 applications, including **xterm**. I successfully ran remote applications on Linux and OpenVMS systems with no trouble at all. I even managed to run an application located on another NT system running OpenNT.

In other words, your NT system will

OpenNT is designed to turn your NT system into a platform capable of running Windows and UNIX applications, including X Windows applications.

be able to act as both an X server and a client. Probably the most important part of OpenNT is the software development kit. Included are the standard development tools such as **make**, **lex** and **yacc**. I successfully compiled **xtetris** and **GNU less** (which is not included) without any problem at all. The SDK will be very exciting for UNIX developers moving to NT.

The future looks good for OpenNT. Softway Systems intends to submit it to

The Open Group in an attempt to receive certification for UNIX95 compliance. If this happens, it may open the door to new installations of NT/OpenNT as Microsoft and others try to push NT as a non-proprietary solution.

All in all, OpenNT is a great tool. Alas, it's not perfect. The GNU C compiler is not included, so you'll need Microsoft Visual C/C++ to do any development. In addition to man pages available at the shell prompts, online help is provided in Adobe Acrobat PDF files, but no search mechanism is provided. If you are a UNIX shop trying to integrate NT into your environment, OpenNT should be on your short list.

What would you like to prompt Ryan to talk about? You can reach him at ryan@maley.org.

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new Products

PowerQuest Corp. Releases Drive Image

PowerQuest Corp. announced Drive Image and Drive Image Professional, a hard-disk imaging tool that allows the user to quickly clone multiple workstations. Drive Image Professional allows the user to create and store a compressible hard disk image file on a network or other removable media device, then download it to instantly configure or upgrade multiple workstations. It also includes an image file editor so you can swap partitions from one image file to another, giving you the unprecedented

freedom to create customized configurations for individual workstations.

Contact PowerQuest Corp., Orem, UT; (801) 437-8900; magic@powerquest.com; www.powerquest.com.

Circle 351 on reader card

WebManage Offers NetIntellect v3.0

WebManage Technologies Inc. released NetIntellect version 3.0, which offers over 12 new features. Besides processing compressed log files (gzip and zip formats), it is

now capable of processing log files at speeds of more than 15MBpm.

NetIntellect v3.0 is a 32-bit Windows 95/Windows NT application and includes long file name support. NetIntellect is a log analysis software that provides two modes of operation: a fast processing mode and an extended processing mode.

NetIntellect v3.0 is compatible with Apache, Netscape, Microsoft IIS, Purveyor, IBM, Lotus Domino, Oracle, Open Market, QuarterDeck, NetWare, UNIX, Windows NT and Macintosh.

Price for a single-user version is \$199 (includes free telephone and e-mail technical support).

Contact WebManage, Nashua, NH; (603) 594-9226; NetIntellect@webmanage.com; www.webmanage.com.

Circle 352 on reader card

Ascent Solutions Inc. Acquires BLAZE Web Performance Pack

Ascent Solutions Inc. (ASI) acquired BLAZE Web Performance Pack from Datalytics Inc., which incorporates xspeed technology to accelerate Web browsing.

ASI will continue to develop BLAZE in



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order to keep its capabilities congruent with new features of the Internet. BLAZE now supports the current versions of Microsoft Internet Explorer and Netscape Communicator. Updates and enhancements were made to the search scripts and to sorting searched results. ASi has also added a Dynamic program update, which allows BLAZE to automatically update as new versions are released.

ASi's full line of compression utilities supports AS/400, DOS, Macintosh, MVS, NetWare, OS/2, UNIX, VM, VMS, VSE and Windows.

Contact ASi, Miamisburg, OH; (937) 847-2374; www.asizip.com.

Circle 353 on reader card

Watergate Software Announces PC-Doctor

Watergate Software Inc. announced that its PC-Doctor software, a comprehensive hardware diagnostic and system information tool, was chosen by IBM PC Co. for use across computer product brands on an OEM basis. PC-Doctor technology will be employed throughout all phases of the product life cycle including development, manufacturing, customer support and as an on-board diagnostic tool for the end-user.

The PC-Doctor product suite is a set of diagnostic and system information tools designed to maximize product quality, service and support in the most cost effective manner possible. PC-Doctor's Modular Core Technology (MCT) contains over 250 test functions optimized for implementation throughout each stage of the product life cycle. Each primary product - PC-Doctor Factory, PC-Doctor for Windows, PC-Doctor NT, and PC-Doctor Service Center - provides a specific diagnostic application of the core technology.

Contact Watergate Software, Emeryville, CA; (510) 596-2080; info@ws.com; www.ws.com.

Circle 354 on reader card

SAS Institute Provides IT Charge Manager

SAS Institute announced IT Charge Manager software and user-diverse computing environments. IT Charge Manager lets CIOs, controllers, end users, and other decision makers pinpoint exactly how IT resources are being used and help build solid business reasons for how to manage those resources.

SAS Institute also announced IT Service Vision software, Release 2, which introduces remote access to any performance data warehouse so that professionals at all

levels of an IT organization can examine and manage IT services from every possible angle. Generally available in November, this latest release extends the software's reach to Windows NT performance data and adds a Windows-like GUI for PCs and UNIX workstations.

Contact SAS Institute Inc., Cary, NC; (919) 677-8000; software@sas.com; www.sas.com.

Circle 355 on reader card

MCI Combats Hacking With DoS Tracker

MCI announced the development of the networkMCI DoS (Denial of Service) Tracker, a security software program that provides an additional layer of network security for Internet service providers and major companies seeking protection from hacker attacks.

The application works proactively and reactively, by constantly monitoring a network and then, once detecting a denial of service attack, automatically tracing it back to the source. The DoS Tracker works against SYN, ICMP Flood, Bandwidth Saturation and Concentrated Source, and is currently being modified to detect other DoS-based attacks, including a new attack called the Smurf.

Contact MCI, Washington, D.C.; (800)333-2435; www.mci.com.

Circle 356 on reader card

FutureTel Releases Video Sphinx Pro

FutureTel Inc. introduced Video Sphinx Pro, an advanced A/V encoder and software suite. The product enables real-time capture, editing and deployment of MPEG-standard audio and video presentations for business, professional or personal applications. Through Video Sphinx Pro, full-motion movies, stills, photos and CD-quality music can be easily captured in real time, organized, edited, synchronized and then deployed over CD-ROM and the Intranet/Internet.

Video Sphinx Pro, which is Microsoft ActiveMovie-compatible, and includes software video editing suite comes bundled with Kai's Photo Soap from MetaCreations and BackStage from Macromedia. FutureTel's technology allows a user to edit on either the I, P or B frame. Video Sphinx Pro is designed for the novice user who needs to create and publish high quality content but also includes advanced features for more experienced producers.

Video Sphinx Pro is priced at \$399.

Contact FutureTel, Sunnyvale, CA;

(888) SPHINX2; info@sphinx2.com; www.sphinx2.com.

Circle 357 on reader card

Stratus Enhances SCEnic/SCP

Stratus Computer Inc. introduced a new version of the SCEnic/Service Control Point (SCP) platform, the company's open, standards-based solution for developing and delivering continuously available Intelligent Network (IN) service applications. Release 2.0 supports the Stratus Continuum Series family of continuously available computers. It runs under the FTX operating system, the Stratus' fault-tolerant UNIX operating environment. The service creation and service management functions reside on a UNIX workstation.

SCEnic/SCP Release 2.0 offers application developers, service providers, and systems integrators comprehensive service creation, control and management capabilities, as well as a full-function runtime environment. It supports IN call control applications such as Freephone 800/888, 900 number, alternate billing, line information database (LIDB) and local number portability (LNP). SCEnic/SCP Release 2.0 is configured as individually priced service creation and runtime environments. Users may choose from AIN, ETSI or ETSI/AIN runtime variants.

Prices vary with the Continuum Series model on which the system is based. Upgrades from Release 1.0 to Release 2.0 are available free of charge to customers with Stratus SCEnic/SCP maintenance agreements. Future upgrades will also be free to maintenance agreement holders.

Contact Stratus Computer Inc., Marlborough, MA; (508)STRATUS; (508)460-2000; www.stratus.com.

Circle 358 on reader card

CompuCom Systems, Bluecurve Sign Reseller Agreement

CompuCom Systems, Inc. announced the signing of a reseller agreement with Bluecurve Inc. The agreement enables CompuCom to resell Bluecurve's Dynameasure product family in conjunction with LAN/WAN Projects Group which focuses on providing structured methodologies to design, upgrade and implement sophisticated networks. The Dynameasure product family is the first Active Measurement capacity planning and performance measurement tool for Windows NT Server networks.

Bluecurve's current Dynameasure 1.5 product family includes: Dynameasure Enterprise, Dynameasure for File Services

and Dynameasure for SQL.

Contact CompuCom, Dallas, TX; (972)856-3600; www.compucom.com.

Circle 359 on reader card

GTE Selects Teradyne's 4TEL II

Teradyne received the first order for its new 4TEL II Access Network Maintenance System from GTE. The three-year, multi-million dollar agreement covers national deployment of 4TEL II to more than 14 million telephone access lines throughout GTE's residential and small business network. Deployment of the order will begin in the fourth quarter.

4TEL II is an advanced system designed to further automate maintenance operations and reduce maintenance costs for carriers such as GTE. The new system extends the diagnostic power of 4TEL with a knowledge-based system, called ExpertLink, along with a new measurement system.

Contact Teradyne Inc., Boston, MA; (617)482-2700; www.teradyne.com.

Circle 360 on reader card

PKWARE Markets

Kryloff Technologies' SSSpider

PKWARE Inc. announced an agreement to market Kryloff Technologies' intelligent web agent called Subject Search Spider (SSSpider) Version 1.02. SSSpider is a personal Web agent that runs in conjunction with a Web browser, such as Netscape Navigator or Microsoft Internet Explorer. SSSpider submits search criteria to eight Web-based search robots at a time and, depending on how refined the search, can be broadened to include over 200 different

search robots.

An evaluation version of SSSpider is available for download from PKWARE's Web site. After the evaluation period, a product identification key registering SSSpider is \$29.95. System requirements include Windows 95, 8MB RAM and at least 15MB free disk space. A connection to the Internet, either through a dial-up connection (SLIP/PPP) or a LAN, is also required. In addition, a pre-installed Internet browser, either Netscape Navigator or Microsoft Internet Explorer, is preferred.

Contact PKWARE, Brown Deer, WI; (414)354-8699; info@pkware.com; www.pkware.com.

Circle 361 on reader card

Aportis Technologies Offers BrainForest For 3Com PalmPilot

Aportis Technologies released BrainForest, an idea tracker, action item organizer and checklist manager for the 3Com PalmPilot connected organizer and IBM WorkPad.

BrainForest organizes information using an intuitive trees, branches and leaves analogy. Import and export plug-ins provide compatibility with Netscape Navigator, Microsoft Internet Explorer, Microsoft Word, Ecco Pro, Lotus Notes, Microsoft Outlook, Now Up-To-Date and any other software that is compatible with the PalmPilot connected organizer and the WorkPad's To Do or MemoPad formats. It includes the desktop applications for Windows 95, Windows NT, Macintosh and Java users; a HotSync technology conduit and sample templates for business and general uses.

BrainForest data is 100% compatible with 3Com's HotSync synchronization technology, the 3Com PalmPilot and IBM WorkPad desktop software. BrainForest Trialware software does not expire, has no functional limitations, simple import and

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Contact Aportis Technologies Corp., Portland, OR; (888)APORTIS; info@aportis.com; www.aportis.com.

Circle 362 on reader card

California Graphics Provides 3D Emotion

California Graphics offers real 3D viewing from the workstation to the desktop with the launch of its new 3D Emotion PCI graphics card, based on the 3Dfx Voodoo Rush 3D accelerator. State-of-the-art liquid crystal glasses can be used to deliver a different image to each eye so that objects leap out of the computer or TV screen in full color with a real sense of depth. This 2D and 3D graphics card also delivers resolutions of 1600x1200 in 65,536 colors and 1280x1024 in true color.

Microsoft's Direct3D and 3Dfx Glide APIs are supported as are Criterion Renderware, OpenGL, Apple Quickdraw 3D RAVE API's, and VESA VBE 2.0.

The 3D Emotion is supplied with 6 MB of single cycle 30ns EDO DRAM, which is divided into 4MB of frame buffer memory and 2MB of texture buffer memory. Cost is \$204, the deluxe version is \$234.

Contact California Graphics, Fremont, CA; sales@mail.calgraph.com; www.calgraph.com.

Circle 363 on reader card

CAIS Internet Offers Web-Enabled Phone Service

CAIS Internet announced that it is the first ISP to make Web-enabled long distance telephone service available through an agreement with Networks Telephony Corporation, the leading provider of Web-enabled telephony services.

In addition to voice service, CAIS will also be offering other web-enabled NTC communication products that include fax service, international and domestic long distance Internet access through a local call, and global toll-free 800 service. The NTC global network supports connections in over 220 countries through the use of Infonet Services Corporation's global network. To use CAIS' NTC telephone service, consumers need a PC with Windows 95, Internet access, a sound card, free NTC phone software, and a microphone and speakers or a handset.

Contact CAIS Internet, McLean,

VA; (703)448-4700; info@cais.com; www.cais.com.

Circle 364 on reader card

Ricoh Announces Platinum CD-R

Ricoh Electronics Inc. introduced the Ricoh Platinum CD-R disc. Based on Ricoh's patented advanced phthalocyanine dye, the disc is radically different from all other CD-R media.

Ricoh Platinum provides extremely high resistance to intense light, heat and humidity; incorporates a special Hardcoat layer that protects data from scratches, peeling, and other damage; has a tested archival life of well over 200 years; is optimized for 1x through 8x speeds; and achieves 100% hardware compatibility.

Contact Ricoh Electronics Inc., Tustin, CA; (714) 566-3224; www.ricoh-usa.com.

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For those who have procrastinated (and you know who you are), the people in the know, or claim they know, say that's already too late for an effective long-range solution to the Year 2000 problem. Like it or not, it's time for the quick fix.

In the spirit of holiday giving and family sharing, we're sponsoring a discussion forum for our *HP Professional* community of readers, vendors and others facing the Y2K problem. Think of it as a support group for the Y2K-impaired. Starting on January 2, 1998 and through the Year 2000, we'll help you help yourselves.

If you can't wait for the Year 2000 to get here because your brilliant plan is coming together or you're sweating bullets with your name on them because there was just "so much else to do" the last few years, drop in on our Y2K Forum. Click on the forum button at www.hppro.com.

And if the Web forum just isn't your thing, we'll publish some the most helpful responses in a monthly FAQ section in the print version of *HP Professional*. To help us get started, tell us how it's going so far.

**1. Are your HP 3000 applications currently
Year 2000 compliant?**

- Yes. The champagne is iced.
- Not yet. It's not as easy as I thought.
- No. What Y2K problem?

**2. Are your HP 9000 applications currently
Year 2000 compliant?**

- Yes. The champagne is iced.
- Not yet. It's not as easy as I thought.
- No. What Y2K problem?

**3. Are your Wintel applications currently Year
2000 compliant?**

- Yes. The champagne is iced.
- Not yet. It's not as easy as I thought.
- No. What Y2K problem?

**4. Has the Y2K problem been overstated and
over-hyped?**

- Yes. Let's move on shall we.
- No. Hasn't even come close.

5. Are you aware of HP's Cure/2000 Solutions?

- Yes.
- No.

**6. What are two question(s) you need answered
about your Y2K problem?**

Send completed survey to:

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HP 3000 SOLUTIONS

THE YEAR 2000



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t

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CIRCLE 268 ON READER CARD

Year 2000 Databases

Not So Simple Date Conversions

**Jerry Fochtman
and Tim Joseph**

Two years ago at a Gartner Group industry conference in Orlando, Florida, one of the leading Year 2000 analysts asked the audience, "How many companies are in the process of considering Year 2000 compliance in their programming areas?" Almost everyone raised their hands.

Last year Gartner published a report stating that by the end of 1997, only one out of every five companies will have addressed their Year 2000 issue seriously. Now, a psychiatrist would say that 80 percent of these people are in an advanced stage of denial. But why? The problem isn't going away. Could it be that it's just not an easy problem to solve?

SOURCE ME

Currently, the first three months of any Y2K project is inventorying and discovering what the actual production programs are. The next step is to find the source program that corresponds to the program. Over 90 percent of the companies have programs in production where the source is no longer available! Whoa! It's hard to modify programs without source, wouldn't you say.

Regardless of these considerations, the next issue after the source programs have been found and addressed, is the need to synchronize the database changes with the source record layouts. Sometimes achieving Year 2000 compliance involves changing the formats of date items stored in a TurboIMAGE database. Dates in IMAGE databases have two attributes: date format and IMAGE item type. Some conversions can be accomplished within the existing item type, while others require that the item type be changed to accommodate the new date format. The technical issues of basic data format conversion and IMAGE type conversion are straightforward operations. However, date fields are often used as key, search and sort fields, or the date fields may contain invalid dates or special signal values used by the application. These situations complicate the conversion task and require special considerations.

When date format conversions encounter an "invalid date," one of two possible options may apply: The date may either be incorrect due to a data entry error, or the specific value may be a special signal to an application. A proper Y2K conversion requires that invalid date values be corrected or converted to known signal dates. Also, the existing signal dates may need to be converted to new signal dates that will be

recognized by the application. It is the proper handling of these invalid and signal dates which presents the biggest challenge in converting the actual data.

A DATE WITH DESTINY

If the date item is a detail search field or a master key, handling invalid dates or the signal dates requires special care. For detail sets, conversion of different invalid or signal dates to the same value results in combining entries from different search paths onto the same search path. If two or more groups of entries are combined that should be maintained as separate groups, it changes the relationship of the detail entries to their corresponding master set.

Converting multiple invalid dates in a key field to a single value in a manual master containing additional data fields poses the added issue of how to consolidate the multiple master entries into a single entry. IMAGE requires that all but one of the master entries be removed; so, which entry should be retained?

Some complicated nuances come into play when IMAGE paths are defined by date fields that are to be converted. In the following example, a manual master with key field "dates" serves as a search path to two difference detail sets. In detail set A, the search field is "order-date" and in detail set B the search field is "ship-date." Any examination or changing of the date values for an individual set or only one of here different search/key fields in this scenario can cause problems with the relationship of existing data entries, possibly even leaving orphaned entries in the detail sets. So, any conversion tools need to take a holistic view. When a date item serving as a sort field for a search path is converted, the affected path needs to be re-built in order to place the entries in proper order using the new date field value. Not so obvious is when a date field is simply a data field that lies in an extended sort field for a sorted search path.

It's just important in this situation to re-sort the search field as well to ensure it meets IMAGE requirements.

Understanding the mechanics of the date conversions along with some of the more esoteric issues will help in making conversion choices. It may also shed light on why the application may start to behave slightly differently on a Y2K converted database.

Jerry Fochtman is Technical Support Manager, HP 3000 Division and Tim Joseph is Director of HP 3000 Development at Bradmark Technologies, Inc., (Houston, TX).

Y2K:

What are we doing about IT?

Birket Foster

January 1, 2000 is looming over the horizon. But Y2K-compliance takes some hard work. The risks are high. And the cost is significant. Yet, despite what you may think, there are a few positives in all of this Year 2000 hype and hoopla. First, the entire planet is on the job, so you're certainly not alone. And it's now a boardroom issue. The Securities and Exchange Commission has made the cost of the potential Y2K problems a liability for the management and directors of publicly traded companies. Companies have been directed to declare the projected costs of achieving Year 2000 compliance in their annual submissions. And even the cost impact of NOT ACHIEVING COMPLIANCE. So, how can you protect yourself and your company from the pending impact of Year 2000 business issues? Here are some ideas:

Form a team. Choose your most experienced personnel, regardless of their current assignments, and place them on your Y2K team. Charge them with the responsibility and authority to scope, manage and fix the problems. Then, make sure your Y2K project is more than adequately funded and fully staffed. The consequences will be severe, if you don't. Strong, highly skilled, dedicated project management is a must.

Then, start asking questions: Where are you today? What needs to be fixed? And what options do you have available to engineer and implement the fixes? Establish priorities for what needs to be fixed first to last and document the depen-

dencies. This initial effort will confirm the project scope and budget requirements. Any changes, either an increase or a reduction, in scope must be communicated, discussed and agreed upon as a team.

DRILL DOWN AND DIRTY

Drill down into each functional business unit. Work with each department to develop an inventory of their IT assets and non-IT assets. Each asset could have a problem when the new century begins. The non-IT assets include program logic controllers (PLC's) on factory floors, weigh scales, cash registers, elevators, security systems, switchboards and voice mail. Virtually any device that might have a *native calendar* function. IT asset inventories must include all PCs, LANs and servers — HP's Web site (www.hp.com) has information on which hardware is obsolete. Of course, all operating system and utilities need to be Y2K-compliant. For MPE, we are talking version 5.5 with the Express 4 Release. For HP HP-UX, it's version 10.2.

And let's not forget all the desktop operating systems, products and tools. Now, it's time to look at desktop management tools to inventory the hardware (many older PCs may not be capable of running in the year 2000) and software (ensure the PC OS is compliant). PC software has to be checked to see if there are any date functions and if those functions will work in 2000. Don't forget to check the formulas in spreadsheets, database programs and script files. Make sure you find all the data involved and convert it; otherwise, a comparison of older versions with new data may fail.

Although the IT department may not have been involved in the creation of all the end user systems, there is a professional responsibility to locate and verify and, where necessary, provide a Y2K solution. This is also a great opportunity to get an understanding of those ad-hoc, informal systems (oh yes, they exist) and document, probably for the first time, what they do and how they are used. For example, one of our customers, after a fire in their building, was surprised to discover how little of the *important data* stored on their PC's was actually backed up and recoverable.

NOT SO FAST

The development of application inventories will be more complex and time consuming than you may suspect. An application has programs (source and object), data (current

AND YOU THINK YOU HAVE A HEADACHE

Boost your PC's date to December 31, 1999 at 23:58 and let the PC tick over for a couple of minutes. Take your favorite editor or spreadsheet and create, then save a new file. Go into the Windows File Manager and look at the report of files view with all details sorted by date. Are those two digit years?! Where does the new file sort to? If it's at the bottom (which undoubtedly it is) instead of the top of the list - you've got a problem! Small consolation: Microsoft may be the software vendor with the largest Y2K problem.

and historical), batch jobs (daily, weekly, monthly and yearend), sorts, scripts, and UDCs or crons. All must be verified for dates and date calculations that will function properly on January 1, 2000. Those that are not up to Y2K snuff will need to be changed, unit tested, system tested and implemented.

The development and test environment needs to be well defined. Acquiring sufficient hardware to develop and test will be a challenge (everyone is doing it). It's possible that make or compile job streams and test bed environments will be required for a different machine permitting the date to be advanced to prove the solution. Converting application code can be outsourced. There are firms that will convert COBOL, FORTRAN and other programs *automagically* using tools that apply rules to the conversion. The cost is about \$1 per line of code. But you **must still test** the changed applications.

Build a test bed for testing the revised data and programs. In addition to the formal programs there may be reports which were written in a 4GL or end user report writer. Discovering all the reports that are used is extremely important. Pay special attention to the year-end reports. And don't forget those reports that your users have developed themselves.

TOOLS FOR THE Y2K-IMPAIRED

Although there are many companies developing and delivering tools to assist you with your Y2K conversion, here are some that are available for the HP 3000. If you're planning to convert your HP 3000 IMAGE data, Adager Corp. (Sun Valley, Idaho) has created utilities that will allow the changing of data fields to many kinds of dates. Others include Allegro Consultants, Inc. (Albany, N.Y.) which offers Hourglass 2000 and SolutionSoft (Santa Clara, Calif.), which offers TimeMachine.

Source code control (also known as configuration management) will make

Y2K projects easier to manage. HP-SRC (Source Revision Control) or RCS (free with the POSIX shell) are available from HP to help keep versions of software under control. Third party source code management software includes: Operations Control Systems (Palo Alto, Calif.) and Diamond Optimum's (HP 3000 and HP 9000) or for PCs or LAN's Mortice, Kern Systems (MKS), Microsoft Source safe and PVCS.

Because any program you have in production has to be matched to the correct source you may want a copy of Aldon's Ocompare to compare a newly compiled copy of the program to be sure you found the right source code. Also Aldon Scompare will compare two source codes. Many vendors have already converted their product offerings to be compliant with Y2K or have a published schedule for when the compliant products will be available. Some will advise you on what needs to be converted and how to convert it in the production environment for their products. If you haven't already done so, you should be checking which vendor's product release will be Y2K safe.

-Birket Foster, founder of M. B. Foster Associates, an HP channel Partner known for supplying desktop and EDI integration applications for HP3000, HP9000 and NT servers, has been involved in the HP marketplace since 1974.

ONLINE RESOURCES FOR THE YEAR 2000

HP Cure 2000 - white paper and listing of resources

www.hp.com/go/year2000 -

www.y2k.com

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Y2K

Why Me?

George Luntz

Congratulations! You've finally decided to address your Year 2000 problem. But now you need to make an important decision about your date storage fields? Should you implement procedural logic changes to "window" the year 2000 solution? Or should you expand them?

Conventional wisdom says that "windowing" requires less effort and time and is less complex to reintegrate into production. True — at least initially. Here's why:

- There are no data file or temporary storage definition changes required. No data conversion is required, thereby eliminating the programming and testing involved and simplifying reintegration.

- Programs can be individually unit tested for functional equivalence and immediately put back into production, because the program to program flow has not been changed. This also significantly reduces, if not eliminates, systemwide tests, and greatly reduces reintegration complexity in the short term.

WINDOWING PAINS

However, there are disadvantages to windowing that could increase the overall cost and complexity of the project over

its timeframe:

- The data underlying the application is still noncompliant. Therefore, external interfaces to compliant applications will require data bridges to be written. This includes applications such as EDI, EFT and interfaces to third-party packages in use at the organization that might have been converted to expanded date formats.

- Access to the data by end users using industry-standard query tools using ODBC or SQL is hampered because they also would have to implement similar windowing logic. This and the first bullet point above apply to encapsulation as well.

- For any dates in keys or sort fields, expansion is still going to be required for correct sequencing. Some sort tools are being upgraded to provide windowing of noncompliant data.

- Unless end users and customers will accept input and output in the form of 01/01/00, user interfaces will still have to be modified to support Year 2000 formats. This will add to the logic changes, forcing all data movement to and from input and output areas to undergo "on-the-fly" conversion.

- Because of the large number of procedural logic changes, regression testing and Year 2000 compliance and boundary testing must be much more rigorous. Because industry ana-

3

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lysts agree that testing will be the major area of resource and cost consumption, this will significantly add to the project cost and time frames.

EXPAND YOUR HORIZONS

The ISO organization standard for date format is CCYYMMDD, which should take us at least through to the 101st century. I don't know about you, but that will do for me. The advantages of the expansion approach are:

- The fix is final.
- Your data will be fully compliant with data query and modeling tools, as well as international standards for data interchange.
- Logic changes will be minimal. This includes functional equivalence, regression, and Year 2000 compliance and boundary testing. However, if you do expand user interface and output formats, additional work will be required to ensure 80- and 132-column compliance requirements.

Conventional wisdom says that "windowing" requires less effort and time and is less complex to reintegrate into production. True. At least initially.

EXPANSION'S COMPLEX-IONS

The disadvantages of expansion are all short-term:

- The initial project resource and cost will be higher. Programs will be needed to convert all data to the compliant format.
- Unless you convert all applications at once, you also will need to develop data bridges between fixed and "unfixed" modules.
- Systems testing and reintegration

will be more complex, because entire modules must be reimplemented at the same time.

SO WHAT'S THE ANSWER?

Most often, the right answer is a combination of the two approaches. By asking the following questions, however, you can quickly assess your options:

- Is this application mission critical, with an anticipated long life span beyond 2000? If so, consider expansion to reduce the ongoing maintenance and interface costs. If not, and time is running out, windowing might be best.
- What are my data interface requirements? If this application is self-contained, with little or no external data access or interfaces, windowing might be best. For applications with demanding data interface requirements, or whose data will most likely be accessed via industry-standard query tools, expansion would be ideal.
- Do I have to conform to the formats of a third-party package in use at my organization? If your applications are built around a core, mission-critical third-party application, then it might dictate the best solution for you.

- Do I have enough time? If timing were not an issue, I would most commonly advocate expansion for mission-critical applications with a long life, or where data interfacing is extensive. For self-contained, short-lived applications, windowing would be recommended.

—George Luntz is president and co-founder of Allegiant Legacy Solutions Inc. (Cincinnati, Ohio).

21ST CENTURY DEFINITIONS

Contraction. Reducing the physical field size so as to not increase storage space. For example, changing fields in a COBOL application from display to packed (COMP-3) or binary would allow for adding the century while reducing the physical disk storage needed.

Encapsulation. Usually, some coded method of depicting a compliant date. One of the most common is the format CYYMMDD.

Expansion. Generally, this entails expanding fields with two digits for the year to four digits. For example, fields storing dates in YYMMDD format, six digits in size, would be expanded to CCYYMMDD, eight digits in size.

Windowing. A method of using only procedural logic to determine whether a two-digit year is in the 1900s or 2000s, using a "cutoff" or "pivot" date to determine this. For example, if we use 50 as the cutoff, then all values of 50 or less would be 19xx, and any great would be 20xx. This creates a 100 year "window" from 1950 to 2049.

A **fixed window** is one in which the cutoff date is fixed, where minimally a coding change to some routines and a recompile of all programs would be required to change it. A **sliding window** is one in which the cutoff date is automatically advanced one year upon each new year, thereby eliminating the need for reprogramming, at least until 2099.

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Do you include TIME
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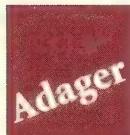
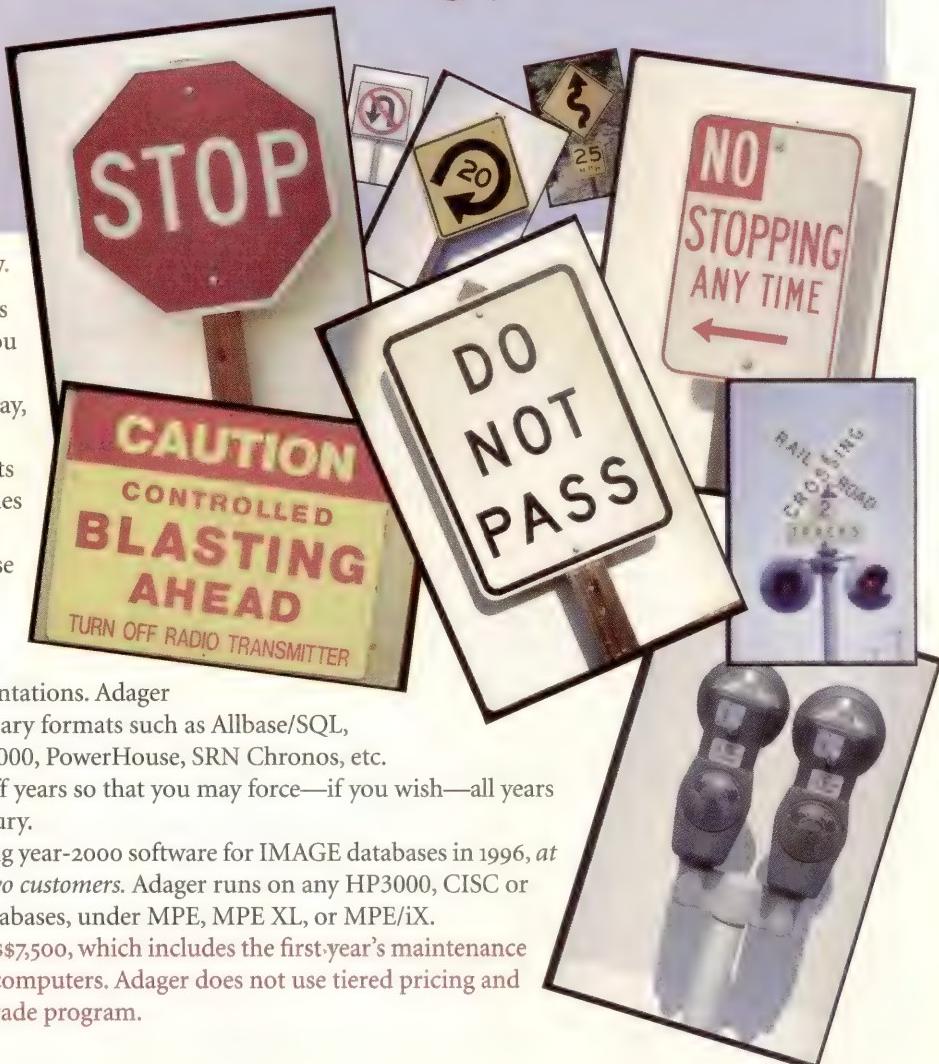
Adager's *CHANGE DATE* converts the necessary data structures and values in your IMAGE databases (automatically rehashing master datasets that use them as search fields).

Adager supports easy formats such as yymmdd, mmddyy, yyddmm, and so on, in ASCII or binary representations. Adager also supports complex bit-packed binary formats such as Allbase/SQL, CA-MANMAN, HP Calendar, MM/3000, PowerHouse, SRN Chronos, etc.

Adager allows *configurable* cut-off years so that you may force—if you wish—all years before a given year into the next century.

Adager proactively began shipping year-2000 software for IMAGE databases in 1996, at no additional cost to Adager Model-Two customers. Adager runs on any HP3000, CISC or RISC, with all versions of IMAGE databases, under MPE, MPE XL, or MPE/iX.

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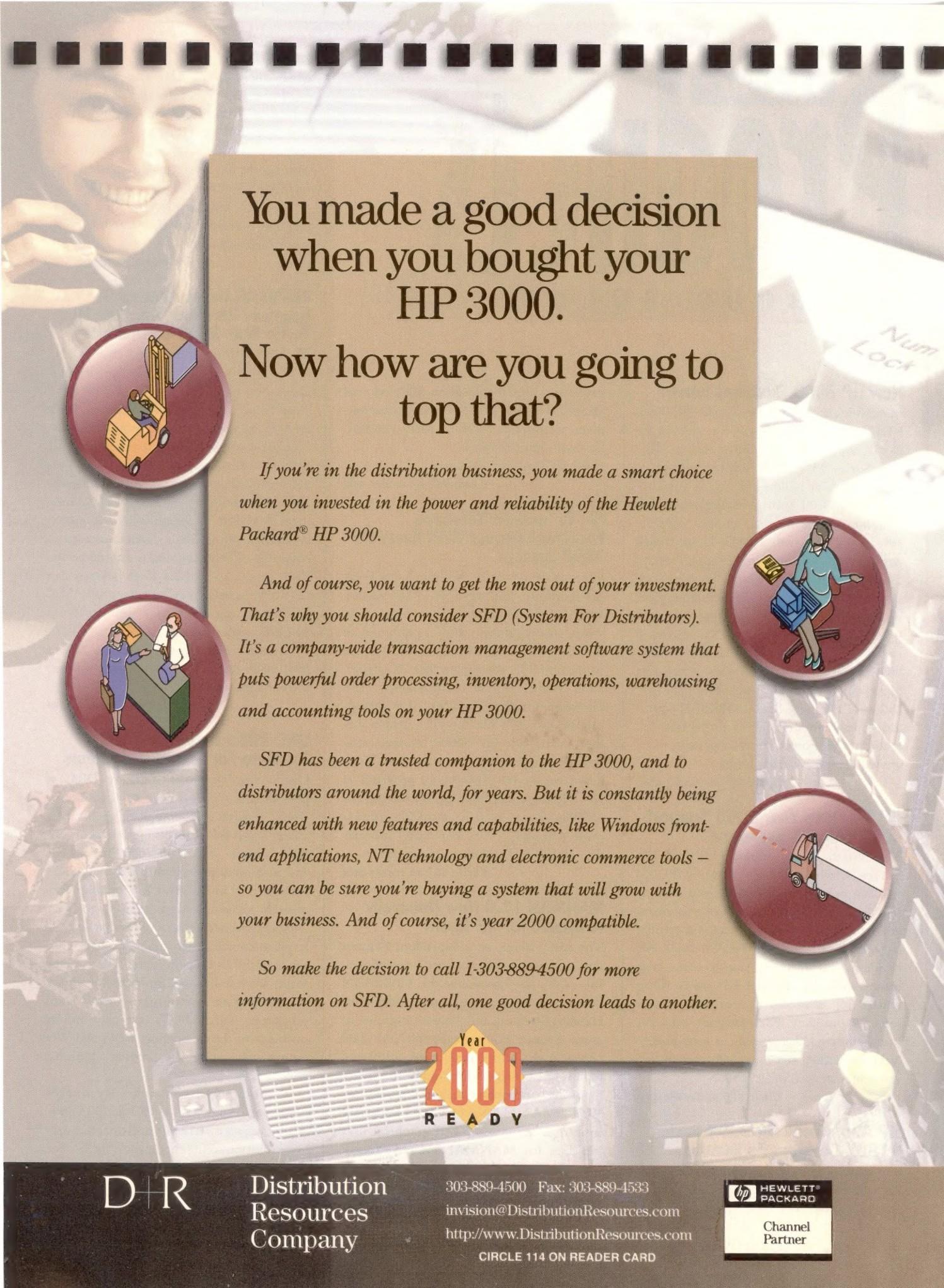
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CIRCLE 114 ON READER CARD



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H P 3 0 0 0 S O L U T I O N S**New HP 3000 Business Server**

In November, HP announced the HP 3000 939KS/020 Business Server, an addition to its HP 3000 family of business servers. The new Series 939KS/020 business server, a key product in building the foundation to move HP 3000 customers into the next millennium, the new server uses 78MHz PA-7200 CPU, with a 2MB cache (1MB data cache and 1MB instruction cache). The new platform also offers extensive I/O expandability, with support for from four up to 28 I/O slots. The single-processor series 939KS/020 system can be upgraded easily to the multiprocessor series 969KS/x20 or 979KS platforms, which use higher-frequency processors. The upgradeability of the new Series 939KS/020 provides excellent investment protection for customers. For more information see: www.hp.com/csy/main.html.

*Circle 405 on reader card***HP Provides Year 2000 Support in MPE/iX 5.5 Express 4**

This month, HP is shipping MPE/iX 5.5 Express 4, which will ensure that MPE/iX will run properly when clocks roll over to the Year 2000. With this release, customers will be able to complete testing and certifying their applications for the Year 2000. HP is offering an in-house, two-to-three year lease bundle on selected HP 3000s along with a full subsystem tape of all HP 3000 software products. For customers who do not want to add a system, a remote-site lease is available. For more information see: www.hp.com/csy/main.html.

*Circle 406 on reader card***HP Announces HP 3000 Series 918DX Developer's Bundle**

HP is offering a highly versatile, low-cost software-developer's bundle. A lease option also is available. The bundle includes several

compilers and tools from HP, free of charge, as well as low-cost or free development software from third-party vendors. For more information see: www.hp.com/csy/main.html.

*Circle 407 on reader card***HP To Include Netscape FastTrack Server With Every HP 3000 System**

HP intends to include Netscape's FastTrack Server with every new HP 3000 system. This key technology offers customers worry-free, business-critical computing to the Internet. HP also will offer the software to current HP customers free of charge. This announcement complements HP's intentions to offer Java(TM) 1.1.2, including the Just-in-Time compiler, which further extends the HP 3000's Internet capabilities. Support for Netscape FastTrack Server on the HP 3000 will be provided by HP. Netscape FastTrack Server for the HP 3000 is expected to be available to customers in early 1998. For more information see: www.hp.com/csy/main.html.

*Circle 408 on reader card***MANMAN 11.0 Now Generally Available for HP Users**

The MK Group, an independent business unit of Computer Associates International, Inc. (CA), has announced the MANMAN Release 11.0 is now generally available for Hewlett-Packard and Digital Equipment users. Release 11.0 provides full Year 2000 compliance, EDI enablement, advanced reporting capabilities for "quick and query reporting" and online analytical processing. With MANMAN 11.0, MANMAN Insight, a Windows-based graphical user interface for MANMAN, is introduced. MANMAN Insight runs in a Netscape or Microsoft Internet Explorer browser and allows Internet deployment of the MAN-

MAN application. Also new with release 11.0 are interfaces to the Resonance Advanced Planning & Scheduling (APS) tool (provided by Thru-Put Technologies) and a Plant/Asset Maintenance Management system (provided by CHAMPS Software).

Contact MK Group, Islandia, NY at (800)407-8686; info@mkgroup.com; www.mkgroup.com.

*Circle 409 on reader card***MANMAN Users Allowed To Upgrade Versions 8.x, 9.x, 10.x To Be Year 2000 Compliant**

The MK Group announced that MANMAN users will be able to upgrade their application releases of 8.x, 9.x or 10.x to be Year 2000 compliant with the new Year 2000 Pack. Three days of professional services and ongoing maintenance support from the MK Group is included. The Year 2000 pack includes an 18-user license for MK Manufacturing, enabling MANMAN users to analyze its functionality and prototype their business in a client/server environment. Clients wishing to prototype the ERP system to support their business can send two employees to a two-day MK Manufacturing orientation and receive a \$50,000 credit for doing so.

Contact MK Group, Islandia, NY at (800)407-8686; info@mkgroup.com; www.mkgroup.com.

*Circle 410 on reader card***DRC Addresses Year 2000 Problem For HP 3000 Systems**

Distribution Resources Company (DRC) is providing a suite of Year 2000 solutions, complete with 2000-compliant applications and a "survival kit" for its customers on HP 3000 systems. The Year 2000 Survival Kit and information are published on DRC's web site. The survival kit includes frequently asked questions relating to Year 2000 compliance, a series of product-specific recommended strategies and detail relating to each DRC application. The package is provided in binder form with the ability to incorporate a customer's specific and proprietary data. DRC's web page and its publications, D+R Support News and The Source will continually provide additional information.

Contact Distribution Resources Company, Englewood, CO at (303)889-4500; info@distributionresources.com; www.distributionresources.com.

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